*First Issue!*

*Business Software Guide*

# TODAY'S COMPUTERS

**How much and where to get it in Australia**

A JOINT PUBLICATION OF THE AGE AND FINANCIAL REVIEW

AUSTRALIA $2.80 OVERSEAS $3.30

## IBM v Mac

**"And the winner is..."**

See pages 16-27

**With "PC Magazine"**

**WIN A $10,000 HP150 TOUCHSCREEN PERSONAL COMPUTER**

HEWLETT PACKARD

# PARITY No.1

Parity Computer Limited opened for business in New South Wales in February 1983.

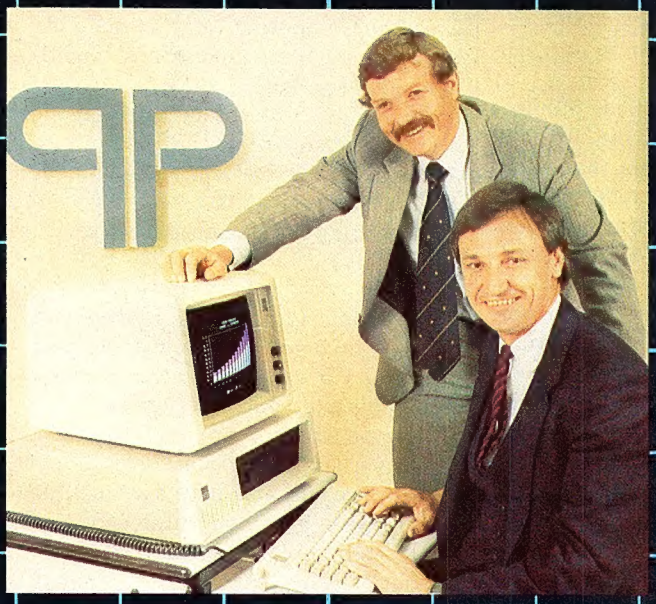
Our Product: the IBM Personal Computer.

Our Scorecard: more IBM PCs sold by our NSW branch than any other dealer location in Australia – and a phenomenal growth rate in Victoria.

Our growth is continuing to accelerate – a rapidly ascending curve built on the sales of the IBM PC, software from Australia and overseas, ancillary equipment such as printers and plotters, first-class training facilities, and a high standard of professional on-going support.

If you want one IBM PC or hundreds – or just want to talk about computing – it pays to talk to the No. 1 dealer.

# AUSTRALIA'S IBM PC DEALER



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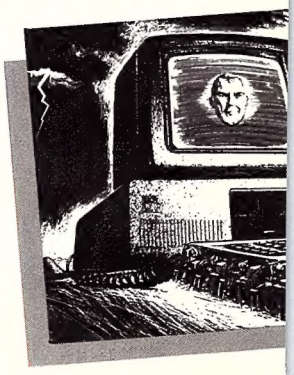
# TODAY'S COMPUTERS



page 36

**May 1984 Vol. 1 No. 1**
**A joint publication of The Age and The Australian Financial Review**

## EDITORIAL

Welcome to Australia's quality magazine for the business, educational and government users of personal and small computers.

Today's Computers, is a joint venture of The Age and The Australian Financial Review publications of the David Syme and John Fairfax Groups. These two newspapers have already combined most successfully to produce Business Review Weekly and Personal Investment magazines, from Melbourne.

We are based in Sydney, with a similarly small but highly professional team. Well then, you ask, why are we here?

Because in the past 3 years, small and personal computers have been much hyped as a panacea for business and education. This has led to confusion and disappointment in the marketplace and the realisation that neither personal nor small computers have all the answers. Nor are they as user-friendly as the industry would have us believe.

★ ★ ★ ★ ★

We are quite simply here to help the consumer.

★ ★ ★ ★ ★

We carry around with us the question posed by IBM-PC father Don Estridge: "There's a question which keeps coming up like waves on the beach: What do I use one for?"

There are many answers to this question and Today's Computers will get them for you.

There is a major gap – believe it or not! – within the plethora of computer magazine and newspaper publications in Australia. Most established publications either cater heavily for the hobbyist/enthusiast or data processing markets. Today's Computers is more broadly aimed at explaining the technology, applications and software available – broadly the commercial benefits – of small systems to non computer professionals using computers. Our editorial language will be words executives can understand, decisionmakers can identify and exploit for their own use.

**Ken McGregor**

★ ★ ★ ★ ★

We thus include from this issue large regular sections on software, applications, communications, hardware benchtesting, graphics and education.

As well, we begin an outstanding update for users and dealers/distributors alike of the latest important software packages in stock. This will be updated each month. We include a Telecom Answerline, which is essential reading for readers with communications queries.

There is a key section of its own on the IBM Personal Computer (PC) and IBM workalikes.

From overseas we incorporate exclusively the best from the world's top small computer magazines. These include the world's largest journal, PC Magazine, and the world's biggest computer magazine seller, Computers and Electronics. Other magazines we again can draw on exclusively (of course), include also A Plus magazine, Digital Review, PC High Tech, PCjr, Microsystems, Creative Computing, and more. Publisher of all these magazines is Ziff-Davis, of New York.

There is local interpretation from the best Australian writers and experts married to our exclusive overseas sources as outlined above. It adds up to a new standard in computer coverage for users.

★ ★ ★ ★ ★

To get the most for you, our readers, you must get involved also. We want to hear from you. We want your criticisms, your comments and your experiences.

Mostly, we will go out of our way to give you a variety of diverse views. Occasionally we will also have a strong line of our own – hence our unprecedented interpretation of the Apple versus IBM phoney "war" for most corporate accounts in this issue.

**Ken McGregor,**
**Managing Editor.**

page 36

page 16

## COVER STORIES


**Mac versus IBM** – Comparative tests of Mac and IBM PCs. All you need to know about the protagonists – and their different market targets. Plus *John Newcombe's* exclusive view ..... **16-27**

**How to win** a $10,000 HP150 touch-screen computer system ..... **108-109**

**New Business Software Guide** – Over 60 of the very latest in-stock releases. What they do, cost and where you get them..... **92-111**


## FEATURES


APPLICATIONS

**GPs & PCs** – Doctors can simplify practice with a PC. Cost studies plus software advice..... **28-35**

**Hartley** and the accountants..... **45**

SPECIAL REPORTS

**No Place to Hide** – Privacy in the information society..... **36-40**

**Computers and People** – George Orwell would have liked the PC ..... **41-43**



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Cover photograph by *Garry Ede*.

**On sale in Australia, New Zealand, Fiji, Papua-New Guinea and New Caledonia.**



GOVERNMENT

**Canberra Watch** – PCs and Public Servants: Technological revolution for the bureaucracy..... **47-48**

EDUCATION

Confusion reigns over Federal computer education policy..... **68**

NSW Tertiary decisions very close on micro networks..... **71**

BENCH TESTS

Digital relaunches its PRO 350 with additional software ..... **76**

Seiko includes some versatile software..... **78**

**Software review** – Macpaint ..... **112**

COMMUNICATIONS

Use your PC to plug into the world but watch the traps ..... **80**

Hooking into videotex with a PC ..... **91**

PC SECTION

I'm 40, I hate PCs, but I'm gonna have to learn..... **51**

IBM moves to combat clones ..... **60**

The small business computer..... **76**

ISSUES

Just who owns your software? ..... **49**


## DEPARTMENTS


Index and Editor's Notes ..... **4-5**

People..... **6-10**

Update..... **11**

Telecom Answerline..... **12**

Looking Ahead ..... **14**

Letters..... **113**

Next issue ..... **114**

Index to advertisers ..... **10**


### C'mon, Write For Us About Computers in Business, Government or Education!

Why not write for us? Today's Computers is looking for unusual case studies of people using personal or small computers. We also want users' experiences with software, hardware and services. Dealers' comments are also welcome, as are suppliers.

Firstly, ring us or drop us a brief outline of what you wish to cover. We will respond to you immediately. Then hopefully we can work out something!

Today's Computers pays negotiated fees and gives prominent author credits for good constructive articles of user value.

All copy must be double-spaced. Use white paper, fresh ribbons and extra white space in margins. Put your name, title of story and page number on every page of your copy. Length of articles should not exceed 1,000 words, unless you have consulted with us.

**Ken McGregor**
**Managing Editor**

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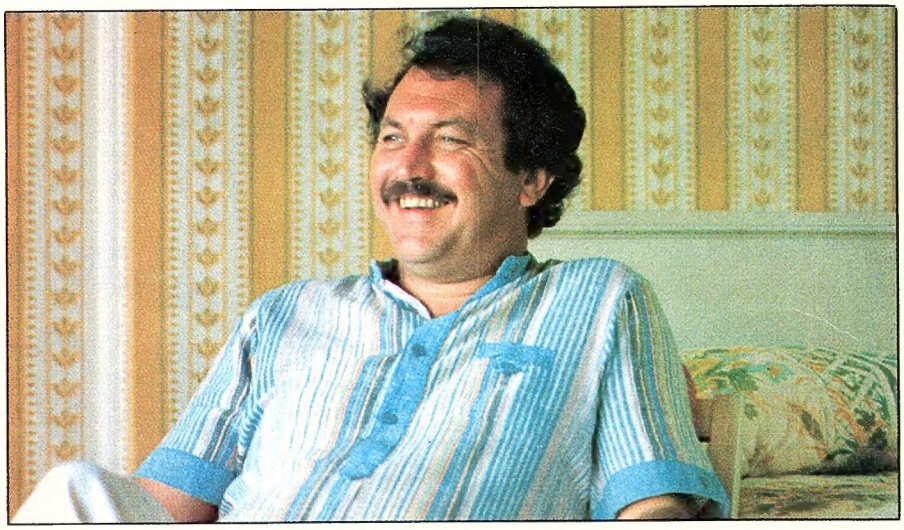
# People



**Mike Wilson:** *Dick Smith may well have a tiger by the tail.*

Last year when the Dick Smith Electronics group called tenders for point of sale terminals within its stores Data Terminal Systems (DTS) unsurprisingly pitched in with a bid.

**Ike Bain,** Dick Smith's low-key chief executive, got involved as did his peer at DTS, the noisy and aggressive **Mike Wilson.**

Interestingly, DTS missed the deal. However, a few weeks back Wilson slipped into a new second-in-command post at Dick Smith below Ike as chief executive-general manager.

The Wilson arrival at Dick Smith parallels some major rethinking in a group which has built up its $50 million sales on low-priced but big volume consumer electronics sales. On board also is **Graham Foster,** an outsider with a big background in retail selling.

With its adventurous IBM and Apple workalikes, the Challenger and Cat, to be sold into small business and the top-end hobbyist market, Dick Smith also needs a revamped image for its stores.

The stores are now strongly aimed at attracting enthusiasts and hobbyists – those who are already reasonably au fait technically. They seem hardly user-friendly to the first-time business-type personal computer user who happens to wander in.

Another Wilson priority could well be an acquisition in the US and here the onetime shoe salesman's international background will be valuable. Ike says that Mike will bring a "new depth of top management to us". Former associates such as Keith "Canary" Jones at Sales Career note that Wilson is "highly motivated".

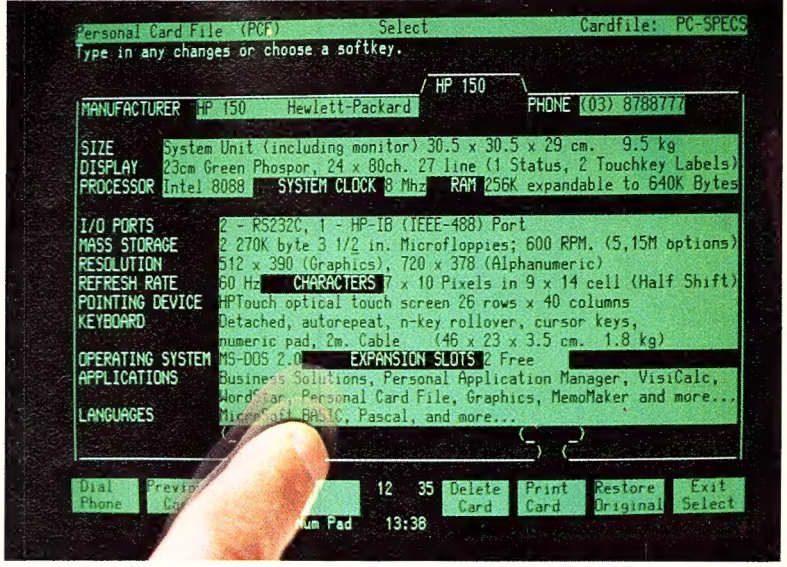
Another associate, John Kouvelis, of Sharp, says there "could be more than meets the eye in the Wilson move". Says John Fox, director of Eagle and Jacquard action at Asia Pacific Technology: "Mike makes waves wherever he goes."

Peter McAllister, of Nucleus and Sage distributor, Hitron, goes further and notes that Dick Smith "may well have a tiger by the tail".

Wilson frequently works a 70-hour week and spends much time sizing up a market before he moves. When he moves "look out competitors", attests Geoff Bransbury at video educator ASI Australia in Melbourne.

At weekends, Wilson plays tennis with his vivacious wife Elizabeth, and travels the Hawkesbury River north of Sydney on his corporate big game fishing boat Guru – downing, aides claim, the "occasional can".

# Now "touch-screen"– more power to Uncle Conrad's little finger.


Personal Card File (PCF) Select Cardfile: PC-SPECS
Type in any changes or choose a softkey.
HP 150
MANUFACTURER HP 150 Hewlett-Packard PHONE (03) 8788777
SIZE System Unit (including monitor) 30.5 x 30.5 x 29 cm. 9.5 kg
DISPLAY 23cm Green Phospor, 24 x 80ch. 27 line (1 Status, 2 Touchkey Labels)
PROCESSOR Intel 8088 SYSTEM CLOCK 8 Mhz RAM 256K expandable to 640K Bytes
I/O PORTS 2 - RS232C, 1 - HP-IB (IEEE-488) Port
MASS STORAGE 2 270K byte 3 1/2 in. Microfloppies; 600 RPM. (5,15M options)
RESOLUTION 512 x 390 (Graphics), 720 x 378 (Alphanumeric)
REFRESH RATE 60 Hz CHARACTERS 7 x 10 Pixels in 9 x 14 cell (Half Shift)
POINTING DEVICE HPTouch optical touch screen 26 rows x 40 columns
KEYBOARD Detached, autorepeat, n-key rollover, cursor keys, numeric pad, 2m. Cable (46 x 23 x 3.5 cm. 1.8 kg)
OPERATING SYSTEM MS-DOS 2.0 EXPANSION SLOTS 2 Free
APPLICATIONS Business Solutions, Personal Application Manager, VisiCalc, WordStar, Personal Card File, Graphics, MemoMaker and more...
LANGUAGES MicroSoft BASIC, Pascal, and more...
Dial Phone
12 35
Delete Card
Print Card
Restore Original
Exit Select
Num Pad
13:38
The HP150 computer can be operated by touching the screen itself!

Using a computer–even a so-called personal computer–is by no means second nature to an executive. The keyboard itself can be a barrier to many.

Hewlett-Packard's advanced technology has overcome this barrier for you. The remarkable new 16 bit HP150 desk top computer with its MS-DOS operating system can actually be worked by touching the video screen with your finger.

### Touching aids your productivity

Even Uncle Conrad; who has already been using computers to great advantage in his business; can improve performance with an HP150.

He now has, on his own desk, a powerful computer capable of running a wide variety of practical software. It can produce reports, spread sheets, forecasts, payrolls and confidential data which he alone needs to access rapidly.

The "touch-screen" has enormous advantages.

### Your instincts increase performance

From infancy we learn to point at those things we wish to control, or bring to notice. How often have you heard the phrase "I would like to point out..."

This "pointing" instinct inspired Hewlett-Packard designers to create a computer which truly deserves the adjective, *personal.*

The ability of the HP150 to respond when you simply touch the screen gives rapid access to information more easily than you ever thought possible.

### Power on your desk

The HP150 system is compact and takes up very little space on your desk.

You can operate the system via the keyboard *and or* by touching the screen itself. The degree to which you use either depends on personal preference, and the software involved.

### Touching is believing

To understand how close you are to using a truly *personal* computer, test drive the HP150.

Telephone Hewlett-Packard on one of these numbers to find the HP computer dealer most convenient to you.

Sydney: 888 7202
Melbourne: 878 8777
Adelaide: 272 5911
Perth: 383 2188
Brisbane: 304133
Canberra: 80 4244

**Keeping industry, business and Uncle Conrad in touch.**

HEWLETT PACKARD

LBV 5237 HEP 90369/SM

# How you can

## ...and save $20 on any Microsoft

This is no ordinary kind of mouse.

It's a Microsoft Mouse and you can catch one at any authorised Microsoft retail outlet.

Use the coupon below to send for your $20 Discount Certificate, together with a list of outlets to help you find the one nearest you.

Take your Discount Certificate with you when you visit your Microsoft retailer and use it to obtain $20 off any Microsoft software package valued at $100 or more.

When you see exactly what a Microsoft Mouse can do, you'll undoubtedly want one for yourself.

The $20 Discount Certificate is simply an extra benefit to make catching your Mouse an even better deal for you.

Microsoft Mouse lets you choose your options on your IBM Personal Computer without having to use the keyboard.

It makes everything so easy for you.

Just hold onto your Mouse and move it about on the desk top and a tiny pointer (called a cursor) duplicates the movements on your video screen.

Your Mouse sits on your desk top; your lightest touch is all that's required to move it about.

It's so easy... far less fatiguing and cumbersome than using a light pen.

You needn't take your eyes off the screen — which is something you can't afford to do when you have to use the keyboard to call up the option of your choice.

Nowadays, the Microsoft Mouse makes using your IBM Personal Computer as easy as saying 'cheese'.

MICROSOFT MOUSE SETS THE STANDARD

Microsoft Mouse is unique because it can be used with software programmes from many different software manufacturers.

For instance not only can it be used with Microsoft Multiplan, or Microsoft Word, but also with Lotus™ 1-2-3, Visicalc® and Wordstar™.

Microsoft Mouse is the only Mouse in Australia that will drive other manufacturers' programmes.

As with all Microsoft products, it sets the standard for the industry.

Microsoft is highly regarded internationally for the extremely high quality of its software packages.

In fact, it is Microsoft's MS-DOS* that tells your IBM Personal Computer how to think.

Each Microsoft software package has been created as the most efficient software product in its class. But that's not all.

Microsoft provides you with a comprehensive back-up service that is invaluable.

For instance, if you have any problems with your programme... if there's something you don't fully understand... simply phone the Microsoft Hotline and obtain immediate, expert help. There's absolutely no charge for this service.

FULL UNCONDITIONAL WARRANTY

All Microsoft hardware products carry a full twelve months warranty.

*Marketed by IBM as PC-DOS

# catch a mouse

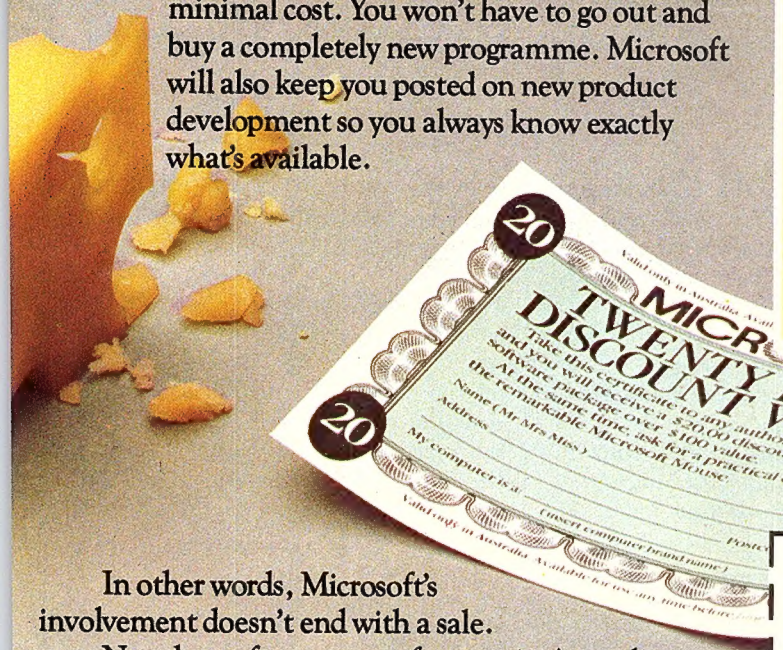
## software package worth $100 or more!

Microsoft Diskettes carry a full 90-day warranty.

Should a diskette develop a fault, Microsoft's repair division will fix it for you within 48 hours of receipt in Sydney. There's more.

Because of the rapid development of computer technology, often existing programmes are further developed and improved upon.

When this happens with any Microsoft package, your programme will be updated for you at minimal cost. You won't have to go out and buy a completely new programme. Microsoft will also keep you posted on new product development so you always know exactly what's available.




In other words, Microsoft's involvement doesn't end with a sale.

No other software manufacturer in Australia can provide these ongoing services and benefits.

That's why Microsoft is the world's largest personal computer software company.§

Microsoft Mouse helps you to speed up editing and choose commands in an instant.

In fact, it makes your computer easier to use.

Once you've seen Microsoft Mouse in operation you'll want one for yourself.

So ask for a demonstration at any authorised Microsoft retail outlet today and get $20 off any Microsoft software package worth $100 or more.

USE THE COUPON TO SEND FOR YOUR $20 DISCOUNT CERTIFICATE AND TAKE IT WITH YOU WHEN YOU VISIT YOUR NEAREST MICROSOFT DEALER.

§ Time Magazine, January 30, 1984.

### HERE ARE SOME OF THE LEADING MICROSOFT PACKAGES.

**WORD** Microsoft Word gives your microcomputer all the appeal of a big system without the price tag. Yet it's the friendliest, easiest writing system in its class. It's inexpensive enough for anyone to buy. And it's easy enough for anyone to use. Word's special undo feature gives you confidence and encourages you to experiment. Everything is shown on screen just as it will appear on paper.

**MULTIPLAN** Microsoft Multiplan provides you with a powerful financial workshop that's the easiest to use. It replaces midnight oil, makes redundant old fashioned ledger paper, pencil and eraser. Using plain English instructions you gain fast access to information you need for decision making. Thus allowing you to explore all possibilities and options with your financial planning.

**EXPERTS** This extension to Multiplan helps you design the most effective spread-sheet for your purposes by asking you simple questions in plain English. Experts then takes this information and creates a professional budget or financial statement for you to present. Its great advantage is that you don't have to be an expert spread-sheet planner!

**YES,** I am interested in catching a Mouse and would like to see one demonstrated. Please send me a list of authorised Microsoft Retail outlets, together with my Discount Certificate which entitles me to $20 off any Microsoft software package worth $100 or more.

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Freepost 2,
TERREY HILLS, N.S.W. 2084.

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Address _____

_____ Postcode _____

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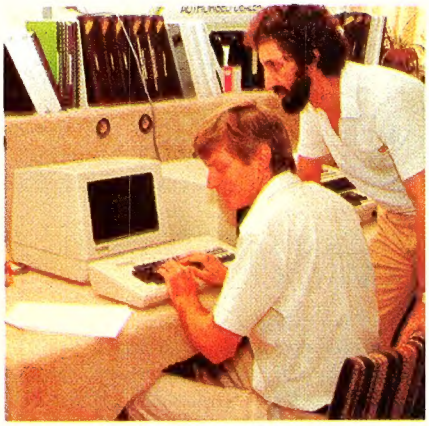

**George Prescott** *(seated) and Len Sargent*

**Linda Graham** (above), the personable MD of Microsoft Australia at ease in her Terry Hills warehouse, which is stacked with the popular Microsoft family; Multiplan, Word, and the new graphics package, Chart.

Lismore, in NSW's north, is the latest move of yet another Rank Xerox Australia (RXA) executive. **George Prescott** formerly oversaw dealer sales for the copier company – now he has bought into local Lismore dealer Integrated Office Systems, where he joins another onetime RXA man, **Len Sargent**.

Integrated Office Systems has already placed locally two Hewlett Packard HP touchtype personal computers with local software. □

Users will keep buying IBM workalikes on the basis of price savings, extra features and support from distributors. Such were the unsurprising comments of **Mike O'Rourke**, director of international sales for Eagle Computer. On a recent visit to Australia, O'Rourke forecast that Eagle could well clock up unit sales exceeding 1,000 this year via local distributor, Asia Pacific Technology Marketing. □

At Melbourne-headquartered Advanced Systems Australasia, expectations are that a significant training bonanza will follow the personal computer market growth. **Geoff Bransbury,** the company's director, claims that "training simply cannot be postponed any more". His company boasts a library of over 3,000 video-assisted instruction courses including Microtutor. □

The Yankee Group has announced the appointment of **Graeme Philipson** as senior researcher. He will be responsible for the company's Australian research operations, including the preparation of industry reports and the new Yankee Group Australian computer industry newsletter.

**ADVERTISERS' INDEX**


ACI Computer Services ..... p.13
A.C.T. ..... OBC
Archive Computer Services (N.S.W.) ..... p.82
Arcom Pacific ..... p.104
Attache Software ..... p.106, 107
Case Communications ..... p.84
Commodore Business Machines ..... p.115
Computer Graphics ..... p.75
Computerland ..... p.34
Convention & Exhibition Administration ..... p.30
Datalink Computeach ..... p.71
Dick Smith Electronics ..... p.46
Digital Equipment Corporation ..... p.58, 59
Dulmont Magnum ..... p.97
Eagle Computer ..... p.72
Graphic Directions ..... p.78
Hewlett Packard ..... p.7
Hospital Computers ..... p.56
Imagineering ..... p.99
Insystems ..... p.44
Intelligence ..... p.102
Intelligent Terminals ..... p.48
Magmedia ..... p.86
Microsoft ..... p.8, 9
Minicomp Software & Education ..... p.89
Nashua ..... p.15
NCR ..... p.33
NEC ..... p.25
Osborne Computers ..... p.43
Parity ..... p.2, 3
President Computers ..... p.38, 53, 95
Prolok ..... p.79
Remington ..... p.20
Sharp ..... p.101
Sourceware ..... p.64, 65
Telecom ..... p.67
Telecomputing PCS ..... p.54
Textrona ..... p.62
Warburton Franki ..... p.90

# Hewlett Packard & Today's Computers put tomorrow's computer technology at your fingertips.

HP150 'Touch Screen' Computer.

HEWLETT PACKARD

LBV5853HEP

# ANNOUNCING

# A Special introductory subscription offer to

# TODAY'S COMPUTERS

Enter a 12-month subscription now and

## Save 25%

on the regular price

Subscribe before **May 31 1984** and you could **WIN** a **HEWLETT PACKARD HP 150** Personal Computer valued at **$10,000**

For full details refer to pages 108 & 109 in this issue

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COMPLETE AND POST THE ORDER CARD TODAY!

COMPLETE AND POST THE ORDER CARD TODAY!

# Update

**Retail software**
Precise administrative control and high-speed point-of-sale transactions at retail stores are what new Adelaide-generated software RETAL is offering buyers.

The software takes advantage of sophisticated and communications oriented ACT Winchester disc drives married with NEC Australian Personal Computers (APC), to come up with a typical $16,000 system.

This system would include two APCSs, large ACT drive, and features including bar code labels, integrated bar code reader, integrated cash drawer and receipt printing with transaction log.

**Computer Mart** of Adelaide, the software house that developed RETAL, says it exploits the networking capabilities of Winchester drives.

**Graham Greenhow**, Computer Mart's managing director, is looking for distributors in all Australian States. He told Today's Computers that three installations had already been secured in Adelaide.

They are Superoo, a Ford automotive spare parts operator, with inventory exceeding 50,000 items; McLaren Trading, a Homestead hardware store with 4 APCs and a 31 megabyte disk drive and Vital Videomart, a video shop with 2 APCs.

Greenhow claims more than $50,000 was spent developing RETAL.

**Disc care**
Care of floppy discs is one of the most neglected user areas. The floppies frequently contain vital information often representing hours of compilation time. If stored at all, most floppies are kept in scattered small cases holding only batches of 10 discs.

One answer here is a new $50 tray which can handle up to 70 discs of the five and a quarter inch variety.

A spokesman for **Textrona**, Sydney-based distributor of the trays, notes that they come from Muscatine, Iowa, which is the home of an old established private group called Ring King Visibles, these days clocking up sales in the $US50 million range.

**Latest entrant**
Portable computers are increasingly being used in data collection and in-the-field analysis applications by business users in Australia.

For travelling executives this often means faster responses to questions asked in clients' offices. For accountants, the potential is enormous.

The Dot portable from **Radaro Computer Devices** of Melbourne, for example, offers Multiplan from Microsoft.

The latest entrant in the field in Australia is the $1,799 President Roadrunner, above, from **President Computers** of Sydney.

This is billed as "an office communications link and remote terminal for travelling professionals" by President head, **Tom Cooper.**

The President Roadrunner operates like a standard typewriter and weighs 5 pounds, fitting into a standard briefcase.

Made by **Micro Office System Technology**, of Connecticut, the unit has a CPM operating system and uses removable, reusable, high-speed cartridges.

**New 16-bit PCs**
Two additional desktop 16 bit personal computers are due to arrive in Australia. One will come from **Fox Computers** and be called the 2001. The other will come from **John Kouvelis** at **Sharp Corporation's** computer and systems division, to augment Sharp's PC5000 portable.

The new Sharp unit will be called the MZ5500 and sell in the $4,000 range.

**Bestsellers**
What are the current bestsellers in computer books? Today's Computers asked **Julian Tol**, at **Computer Reporting Services**, in Sydney. His answer was:
The Personal Computer Handbook, Rodwell; The Commodore 64 Games Book, Ranshaw; Business Applications for the Commodore 64, Lawrence; Commodore 64 Exposed, Bayley; The Power of Multiplan, MIS; Using dBase II, Osborne; VIC innovative computing – 30 games, Ranshaw; The Power of 1-2-3, MIS; The Hobbit; book and cassette for 64, book – Tolkien; cassette – Mitchel; Tantalizing games for the TI 99/4a, Renko.

**Exclusive**
**Asia Pacific Technology Marketing** has appointed sales organisations in Western Australia and Victoria for the Molecular Supermicro range of multi-user microcomputers. Headquartered in the Perth suburb of Victoria Park, **Boss Computers** has been appointed exclusive Western Australian distributor of Molecular.

# Answerline

Communications is an increasingly vital area of personal and small computer applications. In this issue Today's Computers begins an answerline from Telecom Australia that could solve your communications problems.

Write to us with your communications questions and we will have Telecom answer them promptly, each month, in our columns.

Our Telecom Answers service is intended to help the professional user in business, government or education, avoid trouble before it strikes. So don't wait until you're in trouble, send us your questions now.

**Question:** *I am running a small business and expect to purchase my first computer for accounting, etc, this year. I would like it to be able to communicate into Viatel, your videotex service, when it starts. Which personal computers will be able to talk to Viatel and what extra peripherals will they need?*

**Answer:** The following micros have adaptors that give them access to the UK Prestel service. Apple 11, Acorn Electron, BBC, Commodore (card modem software), Tandy and IBM-PC. Typical Prestel adaptor prices in the UK range from £(sterling)93.65 for BBC to £143.63 for Commodore.

**Q:** *We are a medium-sized legal firm and want to know the broad problems of committing on a range of personal computers for our key executives. We would need these later to communicate easily to our microcomputer, a Wang. How much trouble do we take on if we do not buy Wang PCs?*

**A:** Solving this question could mean a fair degree of investigation by your communications manager. Compatibility is the crux of the issue, which really is a matter to be taken up with Wang and the range of PC suppliers, rather than with Telecom. The degree of complexity is related to the functions envisaged of the executive's terminals. For example, if the PCs are to be used as sophisticated work stations, complex protocols are involved, necessitating a high degree of compatibility with your minicomputer. Failure to check this issue thoroughly with equipment suppliers could well spell disaster for your on-line network.

**Q:** *What is the current waiting period for installation of a modem to my IBM-PC and what are the costs to me? Who is approved to sell modems?*

**A:** Modem installation times vary from State to State and from time to time depending on the installation workload on hand. In most cases, assuming a switched network connection for your PC, installation of a telephone service and modem could be effected within 4-5 weeks of applying for the service from Telecom.

In addition to a yearly $190 exchange line fee, an annual modem rental charge is applicable, varying from $200 for a 300-bits modem up to $1120 for a 4800-bits half duplex modem with Datelplinth. Standard telephone call charges also apply.

With switched network operation, customers have the choice of renting a Telecom modem or purchasing their own modem from one of the following private suppliers who have obtained Telecom authorisation:

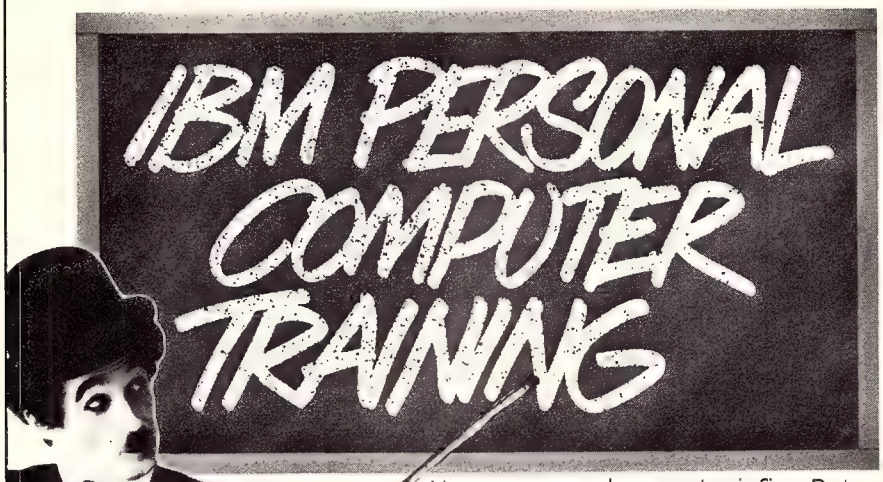
Racal Milgo Australia Pty Ltd, GEC Telecommunications Ltd, Dick Smith Electronics, Datacraft Australia Pty Ltd, Case Communications Ltd, Woomera Electronics Pty Ltd, J. N. Almgren Pty Ltd, Facsimile Communications Systems, Electro Medical Engineering Pty Ltd, Racal Electronics Pty Ltd, Zephyr Products, Data Sat Australasia Pty Ltd, Hypercom Pty Ltd, Techway Pty Ltd, Applied Technology Retail Pty Ltd, Hewlett Packard (Australia) Pty Ltd, LSE Technology Pty Ltd, Consolidated Electronic Industries Pty Ltd, Highline System Specialists Pty Ltd, Centre Industries Pty Ltd, General Technology Pty Ltd.

**Q:** *Who are the suppliers approved by Telecom in Australia of acoustic couplers?*

**A:** Many suppliers have been authorised by Telecom to associate their acoustic couplers with the telephone network.

They are: Texas Instruments Pty Ltd, Electro-Medical Engineering Pty Ltd, IBM Australia Ltd, TCG Systems Automation Pty Ltd, MSI Data Australia, Datacraft Australia Pty Ltd, Computer Technology, Telxon Australia Pty Ltd, Elmeasco Instruments Pty Ltd, Datronics Graphic Systems Ltd, Osborne Computer Corp Pty Ltd, Futuretronics Australia Pty Ltd, Digital Equipment Australia Pty Ltd, Commodore Information Centre, Standard Telephones and Cables Pty Ltd, Dick Smith Electronics Pty Ltd, Summit Electronic Systems Pty Ltd, Datamatic Pty Ltd, Computerm, Sigma Data Corporation Australasia Pty Ltd, Plessey Communication Systems Pty Ltd, Warburton Franki Industries Pty Ltd, Norland Corporation Australia Pty Ltd, Computer Manufacturers (Aust) Pty Ltd. Data Technology Pty Ltd, Scitec Corporation Pty Ltd.

# For maxi return from your micro



Using a personal computer is fine. But getting the most out of it takes understanding. That's why ACI Computer Services (your national authorised IBM Dealer), in conjunction with Deloitte Haskins & Sells, is running training courses for new or current PC users. DHS are international chartered accountants and acknowledged specialists in this type of training. Each hands-on course will be limited to twelve people working on six IBM Personal Computers.

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- ☐ Lotus 1.2.3 – advanced course.
- ☐ D/Base II – information management.
- ☐ Multiplan – spreadsheet.
- ☐ Multimate – word processing.

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# Looking Ahead

With many users and suppliers recovering from a major Sydney exhibition-conference and several more exhibition-conferences planned in major cities later this year, it's refreshing to be involved in a relatively minor but no less significant show.

Thus Today's Computers will be distributed to all visitors at the Canberra Office Expo from April 17 to 18 at the Lakeside Hotel.

**Government**

Our May debut issue contains a thorough look at the status and future of personal computers in Federal Government departments. It is written especially for us by Eric Campbell, a senior journalist on The Sun newspaper. The education scene for personal computers nationwide is covered no less pertinently elsewhere in this issue by another writer, David Shires of The Australian Financial Review.

The Canberra show is a sellout – more than 100 suppliers are involved with at least 40 displaying personal computer equipment, software and supplies. This represents an excellent opportunity for public servants and businessmen in the ACT to bring themselves up to date on trends and new products.

**Canberra Expo**

Regional-type exhibitions "in the heartland of the users themselves" are the brainchild of that ubiquitous guru of specialist publishing, David "Rooster" Kyle, of Practical Marketing.

Kyle claims Canberra Office Expo is the widest range of office systems yet seen under one roof in the nation's capital. Emphasis is on showing users specific improvements that they can make to everyday tasks.

The Looking Ahead column will each month list major conferences, exhibitions, seminars and professional meetings of interest to Australian small-computer users. Keep us in touch if you would like your event on this page.

**Ken McGregor**

**AUSTRALIA**

| | | |
|---|---|---|
| Hartley International Users Conference | April 8-14 | Chevron Hotel, Surfers Paradise. Hartley 07 377 0509 |
| Office Expo | April 17-18 | Lakeside Hotel, Canberra. Contact: David Kyle 02 958 1811 |
| RACGP Computer Conference | May 8-11 | Moonee Valley Racecourse. RACGP: John North 03 240 8671 |
| Data 84 | May 22-24 | Centrepoint, Sydney. Graphics Directions 02 212 4199 |
| Office Expo | June 7-8 | Anzac Memorial Club, Cammeray, Sydney. David Kyle 02 958 1811 |
| DATCOM | June 12-15 | Royal Exhibition Buildings Melbourne. Dick Glover 02 467 1949 |
| The New IBM Revolution | July 20-21 | Hyatt Kingsgate, Sydney Yankee Group, 02 399 8200 |
| Personal Computer Show | July 18-21 | World Trade Centre, Melbourne. Graeme Selby, 03 20 1208 |
| Office Expo | August 8-9 | Newcastle Workers Club. David Kyle 02 958 1811 |
| Office Expo | September 26-27 | Masonic Businessmen's Club, Parramatta David Kyle 02 958 1811 |

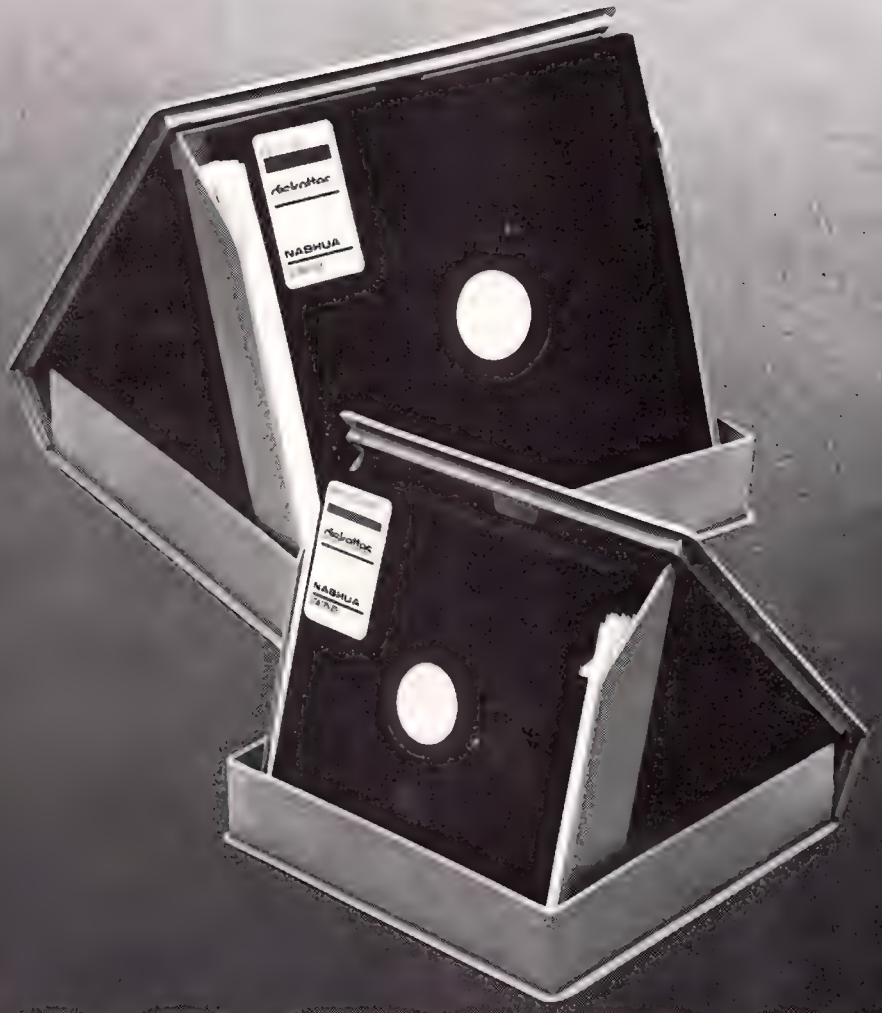
**Right: David "Rooster" Kyle of Practical Marketing, the ubiquitous guru of specialist publishing, who is behind a major Canberra exhibition from April 17 to 18.**

**OVERSEAS**

| | | |
|---|---|---|
| Personal Computer Userfest | May 3-6 | Chicago |
| Byte Computer Show | May 10-12 | Chicago |
| Comdex | May 22-25 | Atlanta |
| Micro-Expo | May 22-26 | Paris |
| PC Expo | June 26-28 | New York |
| Personal Computer Userfest | September 20-23 | New York |
| IBM PC Faire | October 26-28 | San Francisco |

NOTE: Need more details of any of the above overseas events? Ring Today's Computers on 02 235 6515.

# "Quality Circle" Diskettes

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# Macintosh Versus IBM's PC

The winner? Our experts repudiate Apple claims that the Macintosh is on a collision course with IBM.

In January this year John Sculley, Apple president, told an Apple shareholders' meeting in the US: "The Mac will supplant the PC (IBM) on the desks of corporate America, just as the PC supplanted our own Apples over the last 18 months."

His brave words impressed the shareholders and Wall Street, but could they be a smokescreen? If stock market analysts believe that all suppliers must inevitably clash with IBM, why shouldn't Apple pander to their beliefs while quietly getting on with its real business?

**Another market**

The Macintosh's design seems to indicate that it is aimed at quite another market. Despite very expensive launching money accompanying the Mac, a direct standup fight with Big Blue may not be on the cards after all.

Managing editor Ken McGregor met Sculley in California recently. With the greatest respect, Today's Computers begs leave to doubt all the bally-hoo surrounding the Macintosh launch.

On the following pages a special and fascinating study by Coopers and Lybrand finds that IBM will win hands-down in sales to most Australian companies. The Mac will succeed also – but in different fields – such as a superb, low-cost productivity tool.

Coopers' microcomputer expert Richard Champion finds there are some big pluses to the Mac, such as its documentation, speed, ease of use and simultaneous applications switching ability. Champion also finds that one disk drive, rather than two and lack of memory storage, are drawbacks.

In another exclusive report, the Yankee Group pinpoints some major shortcomings of the Mac. Yankee, however, believes the Mac will play a major role in education.

In June, consultant Kevin Howard profiles the key people at Apple Australia and the IBM Australia PC team. Meanwhile, Peter Sandys of major software group Microsoft tenders a personal and positive view of the Mac.

The following pages contain the most thorough and exhaustive coverage yet of where the two giants of personal computing are heading for in this country.

Photo: Daniel Mendelbaum

# Why The Mac Can Compete

Richard Champion, microcomputer partner, central microcomputer group, Coopers & Lybrand, considers Apple's strategy with the Macintosh.

Apple's Macintosh is finally available in Australia this month in limited stocks following its world-wide release in January this year. Has the long expected battle for the big orders in the corporate sector begun?

Is IBM with its PC on the run? What does it really mean to the user anyway?

Our background is strongly IBM and Apple – Coopers would have over 100 earlier Apple models and 50 IBM-PCs scattered throughout its branches in Australia.

Some of these personal computers are on key executives' desks and are used sparingly as personal productivity tools by these people; others are used in text and number crunching roles to a greater extent.

At the invitation of Today's Computers we have now had three of our people examine the Mac over a period of not less than a working week. I believe this is a much longer period than any other Mac assessment yet published in Australia.

Where does the Mac fit in in a world dominated by IBM? At $7,000 and up for an average IBM system and $4,000 for a Mac, the computers are very different beasts. Who is the Mac designed for?

It is one thing to have a leading-edge product in the marketplace. It's quite another thing to sell the product in sufficient quantities to make its development worthwhile. This has been a problem that Apple has had to face with Lisa, a most innovative, some would say new generation, microcomputer. But the price tag and lack of software had a major impact on its sales.

There is no doubt that the Macintosh will sell extremely well in the education market. It would be most surprising if schools and teachers don't buy it in large numbers.

**Faint suspicion**

There is also a faint suspicion that a lot of mums and dads will buy one so that the kids can learn all about computers. My 16-year-old son is clamouring for one, even though we have an Apple IIe. He is interested in graphic design and engineering and has found it useful in his year 11 high school work.

People who are interested in computing and have a tendency to collect hardware will all want one.

The big question mark will of course be in the smaller business and corporate environment. And herein likes a problem that many users have with microcomputers. In today's market of plug compatible, local area networked, microcomputer systems, many prospective users feel that their microcomputer has to plug into almost everything that moves. If local area networking is a requirement, then maybe Macintosh is not the best microcomputer for you.

Macintosh has been built along similar concepts to the original Apple. That is the one person, one computer concept. It really is a single-user, single-tasking microcomputer system. It will be extremely useful in any office environment if it is used as a low-cost tool. A tool that is able to help the business person increase productivity, as well as

***MOST MICROS can perform tasks like spreadsheeting, but can they be used for business accounting?***

assist in the daily running of the business.

In 1969 we purchased 3 Casio calculators, each costing $1,200. Some suggested we were foolish spending so much money when the old mechanical devices were just as good. However, we would have paid for them (in saved time) in less than 6 months, and made life easier into the bargain.

Macintosh falls into a similar basket.

It is extremely portable and easy to move. As a word processor it could be given to a secretary to enter memos and letters. Once finished, Mac could then be moved to the executive's desk for a quick on-screen edit. Adjustments could be made there and then, after which it would be returned to the secretary for printing. This could really increase the through-put of document handling.

**Modelling tool**

As a financial modelling tool it could be used to prepare business budgets and plans, financial reports, and so on. Once completed, this information could be transferred, along with the relevant graphs, directly into a written report.

One thing Apple will need to do if it is to sell to the corporate market is to have its sales staff understand the market. Some of its earlier sales staff simply wanted to sell you a heap of Lisas. No idea what you should use them for, simply that you should buy.

The IBM-PC, while it is not the most technologically brilliant microcomputer on the market, still has a lot to offer the average person in business.

The thought on most purchasers' minds is that the IBM Corporation is so huge, in 4 or 5 years' time IBM will still be around. For many purchasers, this takes a lot of worry out of their first step into microcomputing.

The second major issue, to consumers, is whether the microcomputer system is well supported in the marketplace.

Independent suppliers have definitely supported the IBM-PC. There would currently be at least 10,000 hardware and software products available for use on either the IBM-PC or IBM-PC XT (the hard disk version).

As an example, in writing a book called the Microcomputer Software Buyers Guide we identified the following types of microcomputer software:

| | |
|---|---|
| Electronic spreadsheets | 70 packages |
| Word processing | 144 packages |
| Data Base Management | 90 packages |
| Integrated Applications | more than 20 |

Each one of these programs was able to run on the IBM-PC using either the MS/DOS or CP/M operating system.

When you consider that the IBM-PC has spawned a whole new industry in books, hardware and software, it is unlikely that other manufacturers will seriously impact IBM's PC sales.

The third issue is whether a microcomputer can be used effectively in the office environment. Most micros can perform tasks like spreadsheeting, but can they be used for business accounting? Our firm has installed a good number of IBM-PCs in client offices using Australian accounting software packages. These businesses are able to carry out their various accounting requirements using a hard disk system on the IBM-PC.

At this stage, multi-user accounting software is not available in Australia except running under operating systems such as the British sourced BOS system. The release by Microsoft of version 3.0 of MS/DOS and other networking software later this year will see the emergence of sophisticated multi-user accounting software packages.

In this environment I feel that IBM will win hands down in sales to business.

This is not to say, however, that the Macintosh will not sell to businesses, both large and small. It's just that each company will be, or at least should be, addressing a different sector of the market. IBM slots very neatly into that part of the market which deals in a total solution to business computing. Apple addresses the productivity tool part of the market, and probably better than the IBM-PC.

***IF IT TAKES on the IBM-PC directly it is unlikely that the Macintosh will win.***

A new issue that's likely to emerge is ease of use. There is no doubt that Apple will base a lot of its selling pitch on the Macintosh's ease of use. Nevertheless, a lot of buyers are not going to be discouraged by the prospect of having to spend a good deal of time learning how to use their new microcomputer.

That said, when you get down to using the two microcomputers, the fact

that the Macintosh is easier to use emerges as a positive feature. Once you come to grips with the Icon it is much easier to carry out operating system functions like copying a disk than it is under MS/DOS. For example, if you wanted to make a backup copy of a memo contained in an MS/DOS file called "MacRevie.RSC" (limit 8 characters) you would need to key into your computer the jargon "COPY MacRevie.RSC MacRevie.BKP" if the file to be copied is on the same diskette. Using diskettes in separate disk drives requires that you key in COPY MacRevie.RSC b: MacRevie.RSC".

To perform the same copy operation on Macintosh on the same diskette, you would click MAC REVIEW +1, then pull down the File menu, and click Duplicate. The screen display shows this operation pictorially. To copy the memo to another disk is a little more involved. Drag the Icon outside the window, eject the diskette, load the new diskette, and drag the memo Icon to the duplicate disk's Icon. You would then return the Icon to its original window.

Of course, two disk drives would help the Mac copy. To rename a Mac file or a disk you simply position the mouse cursor over the disk or file name. Click the Icon open, then backspace the old name away and type in the new.

IBM obviously has a number of new personal computer products for release this year. Although Apple has succeeded in mounting a really strong challenge to complete victory by the IBM-PC and PC look alikes, if it takes on the IBM-PC directly it is unlikely that the Macintosh will win. Should Apple address its different market, there is a good reason for the Macintosh to succeed.

If you accept that the Macintosh is a low-cost productivity tool, then there really isn't a lot of areas in which the two microcomputers need clash.

*Richard S. Champion is microcomputer partner, central microcomputer group, at Coopers & Lybrand Services, Sydney. In addition he is a chartered accountant, a member of the Australian Computer Society, and an Associate Fellow of the Australian Institute of Management.*

# Macintosh Buyers' Checklist

Some major unanswered questions still hang over the Mac, according to the Yankee Group in this exclusive report.

A major question hanging over the Macintosh, according to the Yankee Group of researchers, is whether software developers, dealers and end users can be sold the Mac.

Yankee maintains that Apple will not sell directly to large businesses.

Moreover, the Macintosh has limited networking capabilities, although 3270 will shortly be available. Although Apple offers both asynchronous and synchronous communications packages, its only networking product is the as yet unannounced Apple Bus, which is not a proper LAN for a large building.

But Yankee believes that small and medium-size businesses are likely buyers of the Macintosh, especially considering the software support promised by vendors like Microsoft, Lotus, Digital Research Inc, Sorcim, Ashton-Tate and over 75 more software vendors.

Many independent software vendors will also see Macintosh as an exciting alternative, for two reasons.

First, many independent software vendors see IBM taking a greater role in writing, publishing, and distributing software.

Second, many programmers are becoming frustrated with the limitations of the IBM-PC.

But why, asks Yankee, will end-users buy this product?

First, it is exciting. The Macintosh's high-resolution display and fantastic graphics quickly draw crowds.

Second the small, limited keyboard and the mouse are attractive to many new users since they do not appear to represent a threat.

Third, the ability to quickly and easily set up and begin using the Macintosh is also attractive to many users who have seen the large variety of cables and connections needed to set up an IBM-PC.

Fourth, Apple's advertising image of Macintosh users being young, adven-

Continued page 22

# NBI. The first block in building your office automation system.

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# Newk Likes Them Both

Sometime later this year John Newcombe will acquire his first personal computer.

The unit and software will cost less than $10,000 and handle the former three-times Wimbledon tennis champion's business and personal financial affairs.

"Newk", as Newcombe is better known, says the computer "could well be the best investment I could make". He is adamant that a small computer will be the only way of tracking his business expenses in detail and getting a regular analysis of the worth of his activities.

"You must keep a track on your nickels and dimes – if you do, the dollars will take care of themselves," he said in his rooftop Crows Nest, Sydney, offices.

"I haven't been keeping track of the small expenses, and apart from annual returns compiled by my accountant I don't know on a monthly basis how my investments are faring."

Newk, Today's Computers suspects, is not atypical (apart from his sporting background) of many small-staffed businessmen in Australia looking at small computers to fine-tune and often save their operations this year.

Forty this year and looking 10 years younger, the straddling 6-foot Newk has no experience first-hand in computers whatsoever.

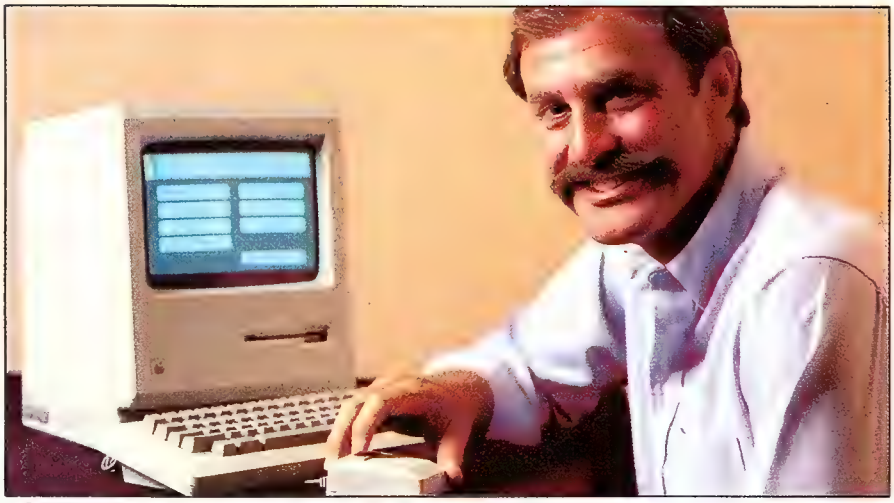
We planted two units at his Pymble home for a few days recently. They were a new Macintosh from Apple Australia – with the help of Inga Fuglestved and a standard IBM-PC, with the help of Robin Oatin, a partner at Computerland, North Ryde.

Newk's vivacious wife Angie and kids – Clint, 15, Tanya, 12, and Gigi, 10 – clambered all over both computers looking at simple business packages and games.

"The consensus was that after we got the hang of each, we found both easy and friendly to use," Newk says. "We are excited about the further potential of the computers."

Angie agrees that further use of personal computers is the answer to Newk's business activities. She takes a key role in Newk Investments Pty Ltd and will probably end up using the forecast permanent system with Newk's secretary, Jenny Bodkin.

"Both computers obviously have a lot to offer and us getting hold of them for the first time destroys a previous image I had of computers," he says.



**John Newcombe:** *"I thought computers were out of my league..."*

"I thought computers were so formidable that they were out of my league and only of value for big companies."

Newk's accountant, Bob Solomons, and his solicitor, Paul Gregory, had – prior to the arrival of our Mac and PC – warned of the need for a small computer.

Newk Investments' corporate activities and personal activities centre on varied stakes in residential and commercial property in Sydney, a wholly owned tennis supplies shop and 6 franchised shops, a major advertising campaign with Custom Credit and a sports reporting role for News Ltd.

**Tennis racquets**

There's also a tennis racquet importing and wholesaling operation on behalf of Snauwaert of Belgium, although Newk himself is also involved with Prince-brand racquets.

Sporting activities include a major junior tennis program, the annual Custom Credit Tennis Championships, now the second biggest tournament of its kind in this country and tennis camps with Tony Roche.

Overseas, Newk runs a tennis facility at the Regent Hotel, Fiji, and he also holds a significant stake in a $7 million San Antonio tennis ranch which turns over $2 million a year.

"My major criteria for a computer is that it has to be friendly and easy to use," he says. "I am prepared to do some limited training but not to take a major course, to be able to use one.

"Once we get one in, I would see Jenny and Angie keeping the computer up to date with relevant information and, say, weekly results. I then would hit it about once a week for an hour or two to get a first-hand idea of where we are going."

**Lindfield shop**

Newk's wholly owned Lindfield shop is managed by brother-in-law Terry Heilman. Over 70 lines of stock are held with inventory always exceeding $100,000. Here, Newk is most interested in identifying with his computer the faster and slower selling lines. Data could be transferred to the 6 other franchised Newk stores, or the computer could be shared by all.

For the junior tennis operation, a computer could monitor performance of up to 4,000 children at 120 centres. Percentages of first serves could be analysed, for example.

For the Sydney Entertainment Centre Custom Credit Championships, Newk aims to have his computer book some 137 corporate viewing boxes and track the myriad of expenses associated with such a spectacle.

For Snauwaert racquets, Newk and Heilman need to monitor import costs and sales of different racquet models via agents in all States.

"Keeping track of assets and monitoring costs are where I see us getting real returns from our personal computer," says Newk.

*From page 19*

turesome, exciting, and sexy will appeal to many prospective purchasers, though it may also offend many others. The biggest danger to the Macintosh in all this is that it may acquire the image of being just another interesting high tech "toy".

Despite the Macintosh's apparent sophistication, the Yankee Group is only cautiously optimistic about its success.

While the Yankee Group believes that Apple will ship 300,000 Macintoshs and a total of 800,000 – 900,000 units (IIe, III, Macintosh, and Lisa) by the end of this year, Apple's total shipments will still be approximately 50% less than IBM's production of around 2 million units.

**Caution**

Moreover, Yankee says there are other reasons for caution.

While the user community is asking for basic solutions such as word processing, spreadsheet functions and file management, Apple continues to emphasize advanced features like graphics.

This lack of emphasis on the basics (word processing, spreadsheet, file management, accounting, etc) will probably be overcome by software support from independent software vendors.

In fact, William Gates, founder of Microsoft in Australia, said recently he believes that 50% of Microsoft's revenues will shortly come from the Macintosh.

Still, many old and new vendors will experience problems developing products for Macintosh since it is a new environment that offers far less support (languages, tool kits, utilities, etc) than that available in the IBM-PC world.

***DESPITE THE Macintosh's apparent sophistication, the Yankee Group is only cautiously optimistic about its success.***

There will always be more MS/DOS machines than Macintoshs.

Yankee says that its expansion capabilities, or lack of them, make the Macintosh one of the most limited products on the market. It has no expansion slots. It cannot accept any more RAM memory. (Though Apple has designed Macintosh to accept 256K RAM chips, which would increase Macintosh's internal memory to 512K.)

It will not accept internal modems, printer spoolers, hard disks, or color monitors. As for output devices, the Macintosh will work with only one printer, Apple's own dot matrix Imagewriter.

***THE popularity of these machines for home use and educational purposes will spur software development.***

While the Yankee Group expects Apple to announce numerous upgrades this year, the lack of these features will hurt initial sales to business users who want more than promises.

In fact, the lack of expansion capabilities is probably deliberate, since dealers will present the Lisa series to buyers looking for some of these expansion features.

It's interesting to note that both IBM and Apple share the same "bait and switch" philosophy when it comes to product positioning. In other words, IBM offers the PCjr and Apple offers the Macintosh as entry-level machines but many users in the business market will probably end up buying an IBM-PC or a Lisa.

Moreover, the popularity of these machines for home use and educational purposes will spur software development for both these products.

**Key elements**

Macintosh's US distribution is built on two key elements – 3,000 dealers and agreements with 24 educational institutions (each one signed a 3-year contract for a minimum of $2 million).

In Australia there are almost 100 dealers. Apple Australia has not signed up any Australian educational institutions, but has a history of special educational deals with the Apple II.

While this plan seems to offer immense benefits, there are also pitfalls in both elements. The basic problem with so many dealers is competition. There are many instances of two dealers within one block of each other selling Macintosh.

The large number of dealers will lead to increased competition, which means discounting. Discounting will cut dealers' overall margins leading to poor support and service. Since the Macintosh will be in short supply until at least the end of the first quarter (probably the second quarter), these problems are not imminent but extremely likely by the end of this year.

IBM desktop computer PC shipments (world-wide):

| | 1983 | 1984 |
|---|---|---|
| IBM-PC | 550,000 | 800,000 – 900,000 |
| IBM – PC XT | 80,000 | 400,000 – 450,000 |
| PC Expansion Box for 3270 terminal | 2,000 | 6,000 – 8,000 |
| IBM 3270/PC | N/A | 150,000 – 200,000 |
| IBM XT/370 | N/A | 40,000 – 50,000 |
| IBM PCjr | 1,500 | 500,000 – 600,000 |
| TOTAL | 633,500 | 1,896,000 – 2,208,000 |

# Full Mac Test

The following story contains the findings of the most exciting trial of the Apple Mac so far in Australia. Mac is tops for computer novices. Productivity? Terrific. And the mouse is, ah, super. Richard Champion reports.

In early February, I called at Apple's Ryde, NSW plant to pick up the Macintosh. There it was, Macintosh and keyboard, accompanied by one oversized 110 volt transformer, to take the place of the US power supply we couldn't provide. No documentation at this stage and no printer.

The Macintosh doesn't work in exactly the same way as Lisa – it is, for example, much easier to open and close windows. MacWrite and MacPaint appear to be much easier-to-use software packages than the first versions of LisaDraw or LisaWrite. You are now able to freely move text or drawings between applications. I was never able to get this going on Lisa.

**Pricing**

Apple is advertising the Macintosh with a basic price of $3,445 tax paid, or $4,195 including the Imagewriter printer. This includes the main system unit, keyboard, mouse and various training materials and manuals. It is understood that for a limited period, MacWrite and MacPaint will be included in this price. The carry bag is an extra $155, while a box of 10 diskettes will cost about $75.

This is a reasonable price, given the cost of microcomputers such as the IBM-PC. It's probably not the cheapest on the market, if all you want to do is learn at home. But at this price, you will not get such a state of the art microcomputer from anyone else.

**Hardware**

The most striking thing about Mac is the clarity of the screen. It is basically white with characters and graphics in black. It is a 9 inch screen, with 512 x 342 dots.

| | Poor | Average | Good | Excellent |
|---|---|---|---|---|
| Overall rating | | | | x |
| Ease of use | | | | x |
| Vendor support | | | x | |
| Documentation | | | | x |
| Visual appeal | | | | x |
| Error handling | | | x | |
| Readability | | | x | |
| Usefulness | | | x | |
| Value for money | | | | x |

The resolution is so clear that individual dots making up the letters cannot be detected.

The second feature which will surprise many potential buyers, is its size.

It takes up about a square foot of an office desk, which makes it much smaller than most other micros in its class. In fact, it occupies about the same amount of room as an A4 sheet of paper. This means that it can sit to one side, in relative obscurity, if that's what is required. Weighing in at approximately 18 pounds, it is very easily transported.

I have used an Apple II for nearly 4 years and in all that time I have not been an enthusiastic supporter of its keyboard. Although the Mac's keyboard is a stand alone unit, it does not compare with those of the HP 150, Corona or DEC Rainbow. It is a little easier to use than the new IIe. Some have said that its lack of cursor controls will be a great limitation. Much has been written about the (one could hardly say ubiquitous) mouse.

Typing this review directly into MacWrite, using cut and paste with the mouse, is one of the quickest operations you will perform. And if you don't like using the mouse at first, you can always revert to the Backspace key to correct your errors.

We have recently evaluated both the Microsoft Word, and more recently Vision; both of which interact directly with the mouse. There is no doubt that the mouse helps their performance. The user friendliness of the software is also increased.

The mouse may take some time to catch on.

However, I would say that after using it for a couple of weeks those with initial objections might change their mind. It is remarkable how quickly it grows on you.

The use by Macintosh of 3.5in disk drives will probably ensure their acceptance as a micro floppy disk standard. There is no doubt that these smaller disk drives will offer greater reliability, more storage capacity (400K) and faster data retrieval rates. Hewlett Packard has been using them on its microcomputers for the last year or so. They seem to be 10 times more practical than the 5.25in diskettes; you can put them in a shirt pocket, or whatever, with no apparent ill-effect.

I felt that the one disk drive was a limitation. It would have made more sense to have two disk drives on board.

*Richard Champion test drives Apple's Macintosh.*

Copying from one diskette to another takes some time. Thankfully, the system messages whilst copying are easy to understand.

The system presently includes 64K of ROM, which contains various operating codes including Quickdraw. This generates more than half of the on screen graphics. One thing I noticed about Mac was the incredible speed of the screen.

There is 128K of RAM, and although Apple intends to increase this to 512K later in 1984, it will be a limiting factor for some of the soon-to-be-released application software.

The printer comes from C-Itoh and is able to print anything that the screen can throw at it. The technical literature says that Mac outputs graphic and not ASCII characters to the printer. Some may see this as a liability. However, with the different types of styles and fonts, and various modes of output, this should not be of great concern.

These products should ensure a degree of compatibility, at least with IBM and other Apple products.

Hardware down the line includes the following:

| | |
|---|---|
| Davong | Hard disk storage – 5 to 32MB |
| | 28MB streaming tape backup |
| | Mac Link local area network |
| Microtek | Printer interface |
| | Disk emulation, print buffers and memory expansion |
| Persyst | IBM 3270/3770 emulation |
| Tecmar | 5MB removable disk cartridge |
| | Print buffer – 64KB to 512KB |
| | Expansion chassis – 4 serial ports |

**Software**

Macintosh has some attractive features when it comes to software. The first is the window, which allows you to look at many different applications (we must stop saying files) at once. The window displays the contents of each diskette in a pictorial manner. Macintosh, like Lisa, calls these pictures Icons. To start using the software, or an application created by a software package, you simply position the cursor over the Icon you wish to use, and click the mouse button twice.

It is not necessary to, say, open MacWrite and then to open the memo Mac Review. Clicking twice on Mac Review opens both the word processing software and the memo. It took me some time to get past the computing methods of old. First, clicking the Icon once, to tell Mac the application you wish to use. Then going to the pull down menu and activating the Open command for MacWrite; then repeating the procedure for Mac Review.

The window to each diskette can be placed on top of, or behind, other windows. To transfer a file from one diskette to another is simplicity itself. Just drag the application Icon from its window to the disk Icon. Macintosh handles the copying between diskettes, continually showing on the screen any action required by the user.

This seems to take a fair bit of disk swapping.

To start operating Mac, it is first necessary to insert a disk containing the operating system software. This is referred to as the Startup Disk. Later diskettes do not need to contain this software, as Mac records details of this startup disk, and requests you to load it as needed.

This saves a considerable amount of space on the 400K diskette; the system software on this diskette takes up 143K of disk space. What surprised me was the long time it takes to load the system software from disk. It is frustrating waiting for the disk to finish its work.

Transfer of information from one application to another is simplicity itself. It is easy to transfer a drawing from MacPaint into a word processing or text document. Mac uses a clipboard to store the last item Cut with the Edit command. This makes for fascinating software.

You really have to see MacPaint to believe it. It is so quick that people who have had the opportunity to use some of the other popular brands or microcomputer will not believe it. You can rule lines, draw squares or circles, stretching or squeezing as you go. Lassoo objects, or pull them around the screen, or simply cut, copy or paste. Claudia Ivanoff has separately reviewed MacPaint.

MacWrite is an easy-to-use word processor. Anyone familiar with such software should have no trouble coming to grips with it fairly quickly. I have been using it to write this review. So far I have not read all its documentation but I did need to have a quick look at the section on formats.

Shortly after taking delivery of Mac, Microsoft sent over Multiplan, as well as Chart and Word, for me to use. Having spent about 10 evenings using them, I can say that Multiplan, as it is implemented on the Macintosh, is without a doubt the best spreadsheet I have seen for a long time.

It is much easier to use than either the Apple IIe or IBM-PC versions. Tasks like changing column widths are a breeze. Simply position the cursor, with the

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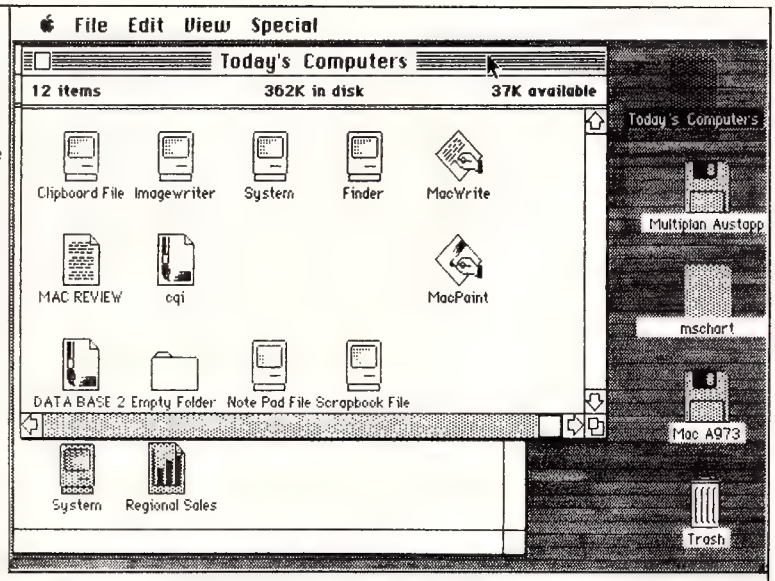



*Window displaying the contents of Today's Computers diskette. The right-hand side of the screen displays the four diskettes presently recognised by the system.*

mouse, then drag the column to the required width. Inserting a row or column requires a similar action.

Microsoft Word is similar to its implementation on the IBM-PC. Both software packages require the use of the mouse. It is more likely to be used by those with fairly extensive word processing requirements. The Word disk seems to have a large number of files on it.

My copy kept telling me that I did not have much room left, and kept shutting down operations. To fix this, I decided to "trash" a few of the Icons in the window.

***IT WILL DO for microcomputing what the automobile did for transport***

These 3 packages complete a most attractive line up of business software. With the addition later this year of the data base File, it should be possible to carry out most business tasks on the Macintosh using these 4 Microsoft application packages.

If this doesn't suit your needs, then the line-up of software developers about to release software for the Macintosh should satisfy you.

The following software is purported to be in the pipeline:

| | |
|---|---|
| Ashton-Tate | dBase II and Friday |
| ATI | training software |
| BPI | accounting software |
| Continental Software | The Home Accountant |
| Digital Research | Dr Logo |
| Lotus Corporation | Lotus 1-2-3 |
| Microsoft | Basic (compiled) for the 68000 chip |
| Software Publishing | PFS:File and PFS:Report |
| Sorcim | integrated spreadsheet (Supercalc ?) |

Apple claims that more than 500 software products are on the way. I hope so. This is certainly a different story to Lisa, which is probably one reason why it didn't sell well in this country.

**Training and documentation**

Macintosh arrives with two tutorial diskettes and audio cassettes. The first is a guided tour of Macintosh, while the second is a guided tour of MacWrite and MacPaint. Both tutorials require you to sit at Mac with a cassette player as you need to turn the player on and off at different points. For the first 2 weeks I used Mac, I had no instructions other than these tours in its use.

They are easy to use and understand. Even the most inexperienced user should have no trouble learning to use Mac effectively, with the guided tours.

Apple says that you should be able to learn to use Mac in just 4 hours. While it may be possible to use a few of its features in this time, you will not learn to use it fully, or properly.

After about 40 hours learning in the evening and at weekends, I am only now starting to appreciate its full capabilities.

Two spiral-bound manuals accompany Macintosh. The first introduces Mac in 160 pages. It starts by saying you don't need to know anything about Mac, or in fact computers. I'd agree with this statement, as they are amongst the most comprehensive manuals on the market.

One of the worst things about the microcomputer industry so far, is the lack of good quality documentation. This applies to both hardware and software. Some suppliers have produced material that is better quality, but they are in the minority. Most documentation consists of 200 or 300 pages in a 3-ring-binder. Wading through so much information can be a daunting task, especially if it is not written particularly well.

Apple may well have set a new pattern for learning, which other suppliers might be forced to follow.

**Conclusions**

There is no doubt that Macintosh is an extraordinary microcomputer. Its conceptual design is so different that it has been a much harder product to review. Macintosh has achieved a rather significant technical feat in packing so much computing power (32 bit processing) into such a small box. It is a well-thought-out, well-designed product.

Its basic limitations for business use, at this stage, are its 128K memory and only one disk drive. It is a pity that if you require more, you will need to have them external to the main housing.

Once again, Steven Jobs (Apple's original designer) has challenged so much of the myth surrounding computing. It does incorporate features that will make it quite simple for those not already familiar with computing to easily use and understand it. It's just possible that it will do for microcomputing what the automobile did for transport.

# Give Me The Mac

The Macintosh is technically superior to the IBM-PC, but is this enough in today's marketplace? Peter Sandys reports:

The microcomputer industry is now raging with a debate about whether or not Apple can regain its leadership in sales over IBM.

Before making an in-depth study of the virtues of the IBM-PC and that of the Apple Macintosh, it is important to clear up some misconceptions.

One of these is that Apple's survival depends on the Macintosh being a success. This argument ignores the financial strength of Apple Inc. It also is based on the concept that success is being no. 1 and that Apple needs to be no. 1 to survive. Companies like Wang, DEC, Sperry and ICL have survived extremely well without the need to be no. 1.

**The Macintosh in detail**

The Macintosh has some extraordinary new design concepts. First, the number of chips used is small – the total number is actually less than that used by the IBM-PC for the monochrome display adapter board. Much of the video display is software driven using the same routines developed for the Lisa. This has enabled a reduction in chip sizes.

This means that the reliability of the Macintosh should be far greater. It has also enabled Apple to produce a very powerful machine in a fairly small package. One result is that the heat output of the system is reduced. The benefit is that no noisy fan is required.

The use of Sony 3.5 in disk drives has distinct advantages. These diskettes are easy to handle and do not require protective sleeves. Apple has managed to get 400K of information onto one side (HP – the other major user of these drives – has only 270K). The Macintosh drives have the capability to be made into double sided for a capacity of 800K per drive.

Communication to the outside world is via a serial port which uses the Zilog SCC chip. This means that with software drivers the Macintosh is capable of transmitting the whole contents of its 128K of memory at much less than 1 second.

**What does this mean?**

Actually the debate is not over the quality of a computer, but that of its public acceptance. The success of the Apple II proves this point. An eight-year-old computer that is still highly successful; it has been assailed from the price angle by Commodore and from the business side by IBM and still it increases its sales.

***THE OLD saying still is true; no-one ever lost his job for buying an IBM.***

The IBM personal computer is not brilliant in its design. It uses tried technology and its disk operating system was based on the CP/M standard.

The Japanese who tried to be innovative with their machines are now producing IBM-PC clones which are becoming more compatible with each release. MSDOS is becoming such a standard for the 16-bit computers that IBM will need to think twice before departing from it. This is reinforced by the commitment of the independent software and hardware vendors.

Further to this is the acceptance by IBM of MSDOS for the PC Jr. In microcomputers the ability to change the market is limited. Commodore found that improving its products and not keeping a compatible link proved disastrous.

The only way in which a major change can occur in the market is by attempting to start a new standard. This ability to change the standard is limited to those computer manufacturers who are able to invest large sums of money into these new standards. The only US companies in this category are AT&T, IBM, Apple and possibly Radio Shack. Overseas, only Japan Inc is capable.

**At the finish it's...**

I believe that the Macintosh will be a computer with a future. It will not in its present form have any significant impact on the IBM market. The sales it takes from IBM will be at the expense of the IBM clones. This is because some purchasers of IBM clones are really anti-IBM but until now can only show their protest by buying a clone.

Also, IBM has tolerated the clones due to its inability to satisfy the demand for its product. If demand slackens then it will become more aggressive. (This may be limited by Intel's inability to meet the expected demand.)

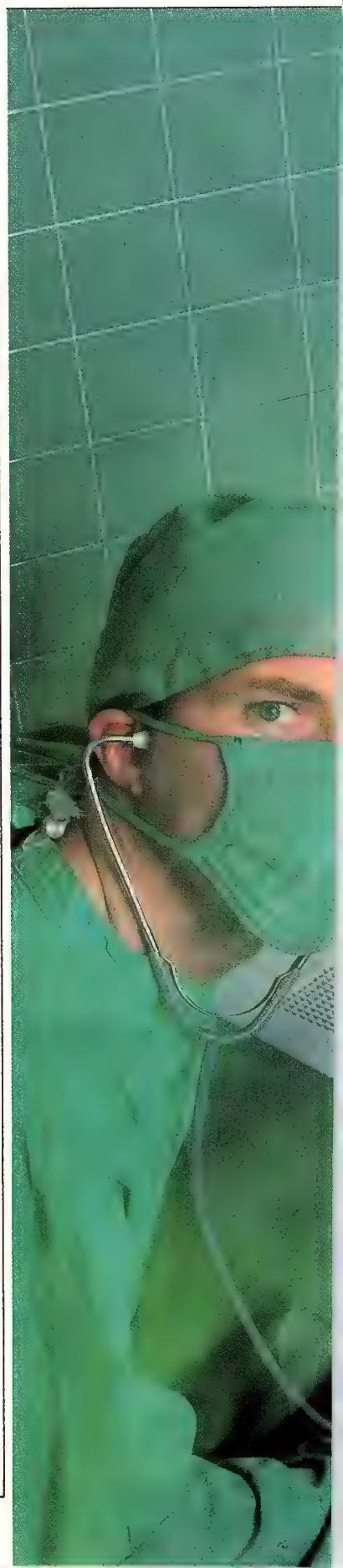
**So who will win?**

The old saying still is true; no one ever lost his job for buying an IBM. The Macintosh, like Australia II, is technically superior but as Bondy almost found, that's not always enough. Personally, I prefer the Macintosh.

*Peter Sandys is a marketing manager with a leading packaged software supplier.*

Small computers can simplify and cut the cost of medical practice administration – but there are traps to avoid.

# GPs' PCs



Most doctors are somewhat bewildered by the concept of a "software package."

The concept of a package is very simple: a software vendor has developed a general-purpose system which allows the user to specify the options required by his or her own practice.

Naturally, the generality of the package ensures that the vendor can sell his package to a large number of users and thus spread his development costs which, hopefully, ensures that all obtain a useful program for a reasonable price.

Against this the user (you, doctor) must confine requirements to what is programmed; accepting a somewhat general and impersonal program that may offer some features of relevance only to larger practices.

The ideal is a reasonably-priced, personalized program tailored to your needs. If you opt for this, budget carefully, and specify your needs clearly. Above all, check the programmer's track record, particularly speed and follow-on support.

I would recommend that any doctor contemplating a tailored system, particularly a doctor with a small practice, should first consider if his or her computer needs might not be more easily achieved by a simple retrieval program for patient records (such as PFS:FILE), a simple word processor and a cheap spreadsheet.

Such a level of automation is far less impressive and elegant than a full-practice management system, but can in many cases offer a cheap, "quick and dirty" solution to the basic problems of running a practice, particularly if the computer is based at home and not in your rooms.

Allow for running your existing manual system for at least a month or two after changing over; allow for staff training and followups; ask other users, if at all possible, to put the problems and timetable into some kind of perspective.

In particular be clear yourself about how soon you must be up and running, and make this clear to your suppliers.

For example, are you coming up to holidays for yourself or your staff? Do you have to have the system working before a locum takes over? Do you have other commitments, at conferences or with hospital clinics, that will limit your own time for studying the system?

I believe that most practices will and should opt for a computer package, rather than contemplate developing their own practice management system. The critical issue is then how to evaluate them.

**The product**

We will shortly touch upon some of the product functions you might require: patient invoices, statements and reminders,

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*John Flynn is a North Sydney based consultant.*

Photograph: Jack Resnicki

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banking slips, patient records, and so on. When you talk to your supplier, ask some basic questions from your checklist:

Does the system support groups or shared facilities?

Can it produce the kind of information you or your accountant may require for taxation or investment planning?

Does it interface to any common wordprocessors or spreadsheets, to help you provide your accountant or bank manager with your financial status?

Is the software easy to use? How much time will it take for your clerical or secretarial staff to learn? If it is a complex system, can it be phased in so that you can implement it in manageable segments?

After hearing the stories of colleagues who bought computers and suffered through the painful settling-in period almost universally required by automation, the wary doctor must have come to suspect that the medical profession is now no more than easy prey for a horde of rogues and charlatans hiding their imcompetence and complex user-hostile programs behind a superficially impressive display of expensive labels and service fees.

So why, nevertheless, are you going to computerize your practice?

Your decision will be influenced by a number of complex, often purely emotional, factors.

Your primary objective will be to speed up your clerical procedures and reduce the workload on your staff or family, but most doctors will probably expect other benefits in addition to these. Expectations may be influenced by a desire to improve cashflow by better control of outstanding accounts, to increase the efficiency of clerical staff and thus avoid the need for new staff, to reduce the impact of workload on limited family time and, perhaps that most elusive but important factor of all, "professionalism" – the feeling that your practice may somehow be less professional medically because you still service your patients' accounts by hand.

Even if workloads can be reduced by computerizing you must keep in mind that the real issue is economic: will the increased efficiency resulting from installing a practice management system justify its cost?

## Case Study No. 1

A city ophthalmologist, who has installed the CCOS system, says that he has gained more control over his practice since he computerized.

"I now have a clue about what's going on – which accounts are owed," he told Today's Computers.

The office staff like to work with the system, too, he reports.

"They like the fact that they don't have to type up the outstanding accounts," he says. "They just press the button and hit return."

This doctor has chosen not to bulk bill Medicare. "Let them do the work," he says. "There have been 7 radical changes in the government medical policy since the Whitlam Government. It's getting like Italy."

He and a group of contemporaries have agreed to stop bulk billing.

"I now give everybody individual accounts," he says. "The system's very good for that.

"I can get a list of who hasn't paid, and you can ring them up."

He has another terminal at home. With a modem connection via the telephone to his office computer, this has changed his work habits.

"Before, I used to sit in the office at night doing the paperwork," he says. "It wasn't much fun, and I tended to avoid it.

"What happens now is that the work gets done. At night I call up the office computer, and get the work on the screen at home. I watch TV and do it at the same time. Now the work gets done; before, I used to put if off.

"It's also been an economic decision.

"Over 3 years it will pay for itself."

One thing that affected his decision was the fact that he was able to amortize about 40% as an investment.

Staff like to use the computer, he says, although at first they thought they were going to disappear out the door, and be replaced by a computer.

"Now they like it," he says. "In fact what they complain about now is the speed. They whinge about 5-second delays now, where before they had to go to files and pull out drawers and shuffle papers to do the same thing."

What then are the main benefits of computerizing your practice?

Specifically, the functions that need to be addressed in most practices are:

- Patient billing;
- Banking;
- Patient record management;
- NHS/Medicare documentation;
- Expense control and general accounting;
- Appointments management;
- Word processing (although in most practices, this may only involve mailing list management and referral letters, rather than major documents).

What are your priorities? Is achievement of any of these a source of concern at present? If so, you have begun to justify your case.

I always recommend that you concentrate on functions rather than features. Make yourself a checklist.

You may want to keep detailed patient records or histories, or to retain payment records for a specific time for tax purposes. These are functions.

Are the programs well documented? Will the vendor train you and your staff? Where? On your premises or in a training school? What additional charges are there for this?

Check the vendor's references on the product. What other practices are using the system? Call one of them and question them thoroughly.

Is the package a proven product? Check the number of users and their diversity: does it cater only for GPs, or only for specialists, or for both? When was the system last corrected?

Does it have a warranty and updating service as part of the purchase? Will the vendor support statutory changes, such as changes to Medicare?

How about the vendor himself? What equipment does he propose? Is it a well-known brand of computer – are there several choices available – or is it a one-off Taiwanese clone that may not exist next year?

For that matter, is the vendor substantial enough to survive to service your future needs as well as your present ones (bearing in mind of course that good systems may be developed and marketed by other doctors rather than by software companies. Although this type of vendor may be less substantial, you may have the additional security of

their own practice being a testbed for developments and refinements).

**The support**

Support is a very broad term, but it should be a major factor in selecting a computer system, both from a hardware and a software point of view.

Since you will probably only require support in an emergency, be certain that your supplier does offer some kind of after-hours service when you need it, and that there is telephone support for simple questions. You should also check to see if the supplier's support personnel are familiar with the application, and are not just technicians, or else there may be language problems when you least desire them.

What does the warranty cover? What is the practice on "bugs", on user problems, on documentation errors? How long does the warranty last?

Two reputable brands of practice management system are worth discussing by way of illustration. These are The Doctor, marketed by The Independent Microcomputer Supply Company, Sydney, and the Clinical Company, Sydney, and the Clinical Computer Office System (CCOS), marketed by Hospital and Clinical Computers, Sydney.

Hospital and Clinical Computers has been developing and marketing medical systems for GPs, specialists and for hospitals for about three years, mainly in Sydney.

The products have been developed jointly by medical staff and programmers, and were originally marketed as a "turnkey" product on Onyx computers, an older-style, multiuser computer particularly suited to groups.

However, since January this year, it has been available on the IBM-PC and thus in a format more suitable for the single practitioner or small group practice.

The CCOS system offers all the features I have discussed broadly above: Patient registration details, including workers compensation and third party, if applicable; printing to a variety of commercial and medical forms, such as invoices, labels, assignment forms, fund forms and radiology forms.

The system bills patients with reference to NHS item numbers and descriptions, and allows selection of a variety of fees. System invoices include redirection to family head, employer, insurance company and solicitors, and all previously uninvoiced items will be automatically included when an invoice is requested.

Payments and banking details are processed by the system and partial payments are accepted. A full set of accounting summaries are produced on a daily and monthly basis and a debtors' summary may be produced by multiple selection criteria.

A typical system comprises an IBM-PC, a 12.5 megabyte Tallgrass hard disk with a tape cartridge for backup, a NEC Spinwriter 3550, and the Spellbinder word processing package. It costs about $17,000 and there is an optional support agreement which is about $40 a week with a sliding scale for more than one doctor. This entitles the user to telephone "hotline" support and updates.

The Independent Microcomputer Supply Company (TIMS) is a well-known Sydney dealer (IBM and some other machines) with associated companies around Australia.

As with the CCOS system, all the major features I look for in medical systems are supported by The Doctor. The system covers appointment bookings, procedure entry, payment receipts, banking deposits, general accounting and statement printing.

The accounting module handles complex fee calculations required by specialists based upon NHS item numbers, and bulk billing accounts are catered for, as well as individual and family accounts.

# Case Study No. 2

"People pay their bills faster," laughs one suburban Sydney general practitioner who must remain nameless because of AMA rules.

"People say to themselves: 'If a computer does it, it must be right', he says. "Whereas with the handwritten bill, they feel it may be forgotten, so they pay their bills more slowly.

"The computer has improved our cash flow and cut down on the clerical costs," he says of his systemedica package.

"What we used to do was keep a box of cards, and periodically we used to go through and send out the invoices.

"With a computerized system, we can invoice daily. We just print them out at the end of the day; it only takes about 30 seconds to set the job up, and then you can just walk away as they print.

"They all have the name and address on them, so you then just stuff them into a glass-fronted envelope.

"Before, with the manual system, it used to take about 5 minutes per patient, to itemize, to total, and to type – a total of about 5 hours each time we did them."

Reports are another useful feature:

"We can have analysis of the total practice, the total amount earned, the total bulk-billed, the total accounts receivable, the total cash incoming and the cheque income," the doctor said.

"The computer allocates a number to each patient. We print out the bar code on sprocket-fed sticky labels, and then you stick it on the patient record manilla file.

"After I've seen the patient, I will hand the file to the front desk person – she will wipe the wand across the bar; and all the billing and accounting information comes up on the screen for that patient in a split second.

"It's always correct. It's never wrong."

"Accuracy" is a prime benefit, reports this user.

"With a manual system you can get a lot of errors and with bulk billing if there is an error Medicare will knock it back. If the writing is illegible, if the spelling of the name, the date of birth, or even the initial is wrong, payment can be halted for a long time; perhaps even months, and corrections have to be resubmitted with a covering letter.

"With the computer, we don't have these problems.

"Also, we've reduced our overdraft and we pay less interest.

"Contrary to public belief, doctors aren't making as much as you think – so cash control is important.

"You might have $1,000 a week operating expenses in a single practice. Out of that, some doctors are getting 20 cents in the dollar and less.

"So it's a high overhead situation, and you have to improve your cashflow. Your accounts receivable are critical. Immediate billing is a big advantage of a computerized system."

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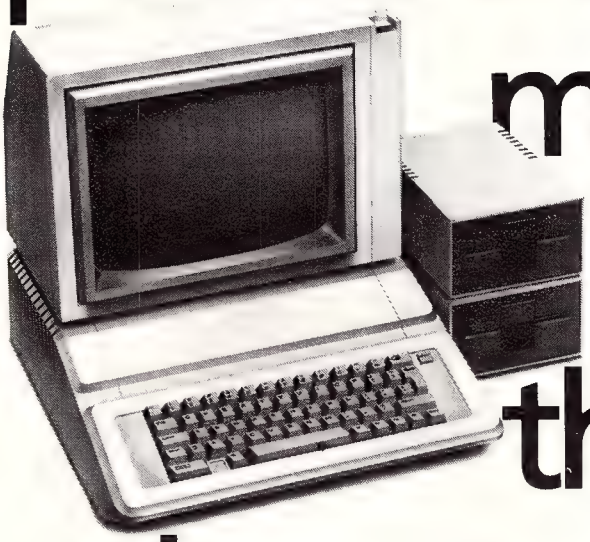

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This system is of particular interest because TIMS also markets a pharmacy system which contains an extensive data base of drug dosage and interaction information. Around the time this issue appears TIMS will be including this data base in The Doctor, which will provide the system with a unique and useful reference tool for the busy practitioner.

A typical configuration for The Doctor (capable of retaining records for up to 20 doctors) comprises an IBM-PC with a 12.5 megabyte Tallgrass disk with cartridge backup, and from one to two printers (depending on the doctor's requirements).

Generally, however, the system will have two printers, one for statements and other accounting stationery and the other with plain paper for letters or reports.

The basic price of a system from TIMS is around $14,700, but other optional equipment may bring up the price. The price includes installation and training, and the company appears to be committed to providing the amount of training required to get the user productive.

**WHAT SOFTWARE IS AVAILABLE?**

There are 40 other medical software packages available in Australia. Laurel Allen of Today's Computers discovered the following:

**CLINICAL COMPUTERS OFFICE SYSTEM (CCOS)**

Hospital Computers
86 Kareena Road
Miranda, NSW 2228
02 526 9101

The *CCOS* system covers every facet of patient billing including instant invoicing (open account), receipting, banking, accounts rendered. Summaries include daily, monthly, and aged debtors and research by multiple variables. Cards, forms, sticky labels, Medicare and bulk billing forms are printed. Facilities for research or review are included, as well as word processor and mail-merge facilities. Systems are customized to the specific requirements of different specialities. Requirements: Turnkey system based on IBM-PC or ONYX (PC/DOS or MPM). Typical system IBM-PC, 20Mb disk with cartridge tape backup, letter quality printer, 576Kb memory at $17,000. Skill level: Novice.

**MEDLOG**

Systemedica
Biomedical Engineering and Computing
214 Victoria Ave
Chatswood, NSW 2067
02 411 2832

*Medlog* is a medical/therapeutic database developed by rheumatologists at Stanford University. It is a research-oriented information system. *Medlog* keeps patient listings and monitors the disease process, therapy, and responses to treatment. Search and query utilities allow this information to be displayed or printed in various ways. Statistics analysis and communications files are provided, together with risk factor analysis. Requirements: PC/DOS 2., PC XT. Skill: Intermediate. Price: On application.

**FRONT DESK AUTOMATION**

Systemedica
214 Victoria Ave
Chatswood, NSW 2067
02 411 2832

A bar code wand minimizes keyboard operation in *Systemedica's* high-speed interactive package for specialist or general practitioners. It gives instant accounts, receipts, and bulk billing without end of day batching. Bar code labels are produced on the same dot matrix printer as is used for billing. Open item accounting is supported by an unlimited dictionary of services. Interfaces to user-tailorable database and wordprocessing are in English. Requirements: PC/DOS, MS/DOS, 256K, 5MBK+. Skill: Novice. Price: On request.

**CARE MEDICAL SYSTEMS**

Pace Computer Services
4 Help St
Chatswood, NSW 2067
02 411 7888

A practice management system, *Care* gives patient billing and receipting, Medicare billing and control, and analysis of items and services per doctor plus a services file. The main menu lists billing, day-end procedures, month-end procedures, year-end, special reports, and account printing. *Care* has database facilities and handles up to 23 doctors on either the Altos multiuser system, or the IBM-PC, and will soon be available for other hardware. Patient history may be password protected. *Care* offers dial-up modem support, and an optional patient appointments record. Requirements: PC/DOS, MS/DOS, XENIX. Skill: Novice. Price: $2,500.

**THE DOCTOR**

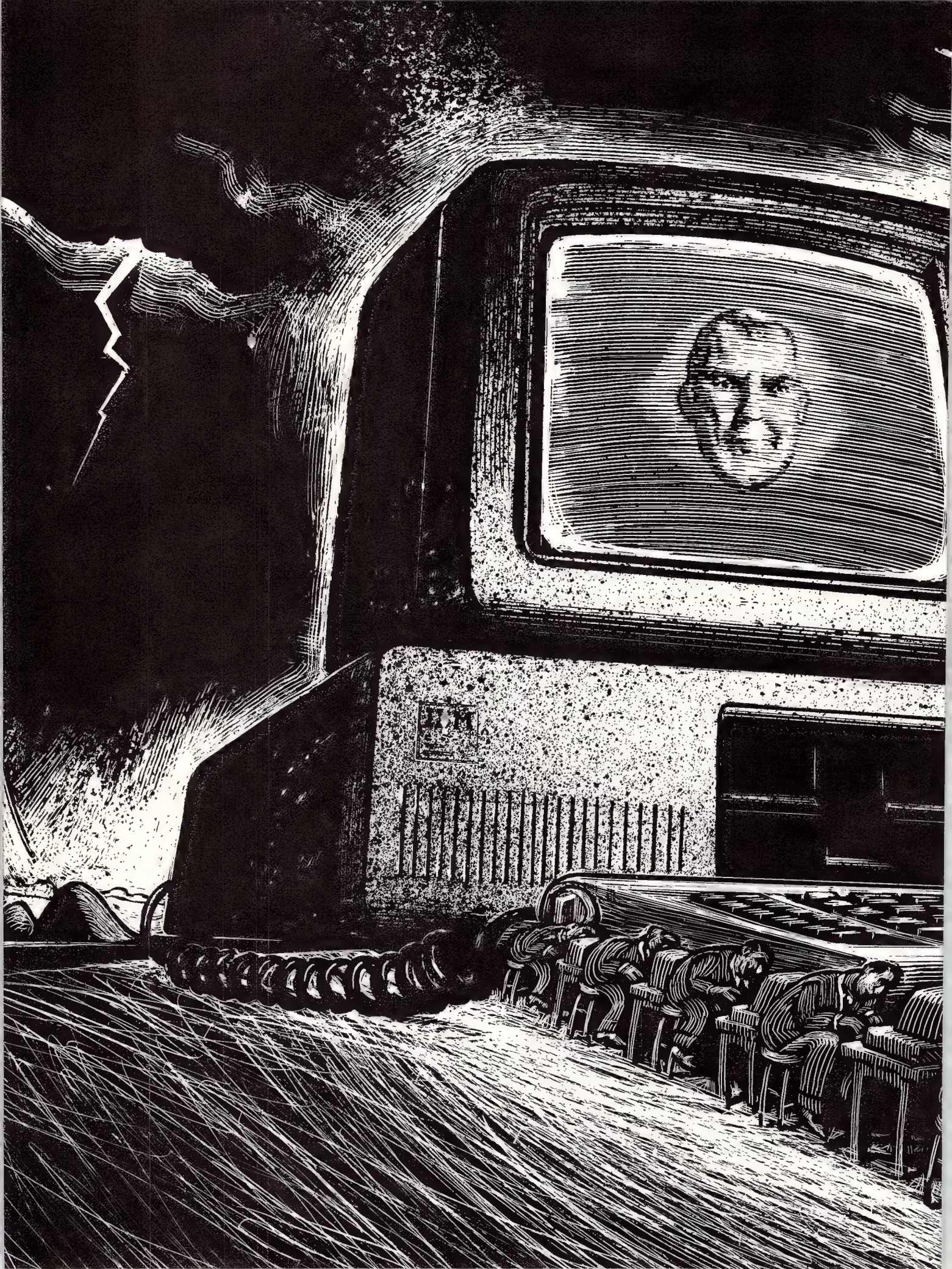
The Independent Microcomputer Group
5 Powell St
Waterloo, NSW 2017
02 698 7666

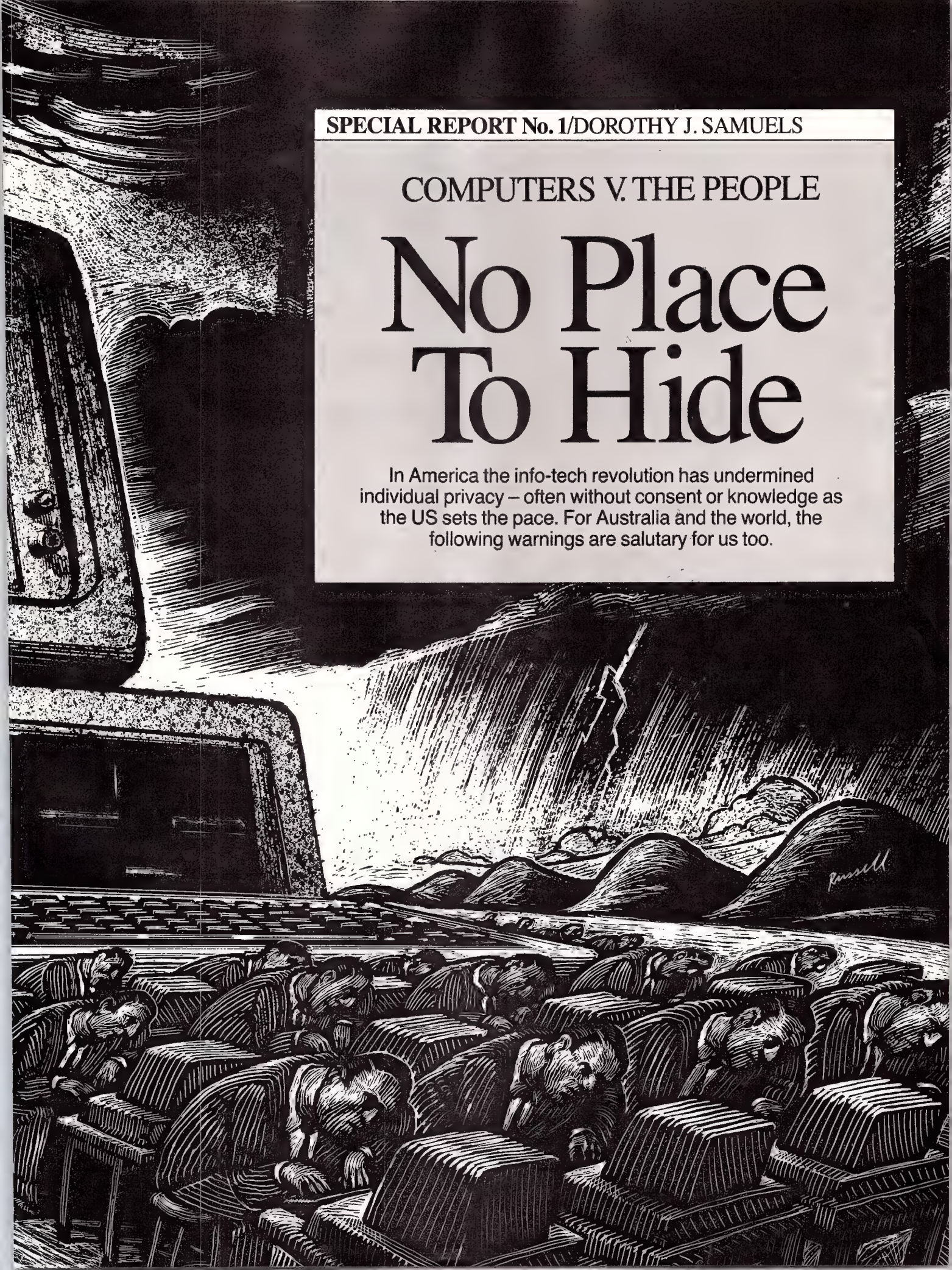
*The Doctor* is a medical practice management system that handles up to 20 partners, and 35,000 patients. *The Doctor* has patient profiling and notes, appointment booking, payment receipts, daily banking deposit slips and general medical accounting. It gives immediate and monthly statement printing, as well as service analysis reporting. It has a database of drug usage and interaction information. It can be a single user or multipoint site. Requirements: IBM-PC or network up to 70 MB. MS/DOS. Skill: Novice. Price: $2,900.

**HIMED**

HiSoft
8 Alma Rd
St Kilda, Vic 3182
03 534 0383

*HiMed* can cater for a practice with up to 99 doctors. It lists standard items on file, with up to 5 fees per item. Patients are identified by either account number or name. After consultation an invoice/statement can be prepared with provision for receiving payment at the same time by either cash or cheque. Transaction statistics by doctor, charge type, item number and date can be produced. *HiMed* prints bulk billing forms. At the end of the day a deposit slip can be produced for lodgement with a bank and the system will generate a complete transaction log report. Requirements: 5Mbyte hard disk, 128 KB RAM, PC/DOS, MS/DOS. Skill level: Technical. Price: $2,995.



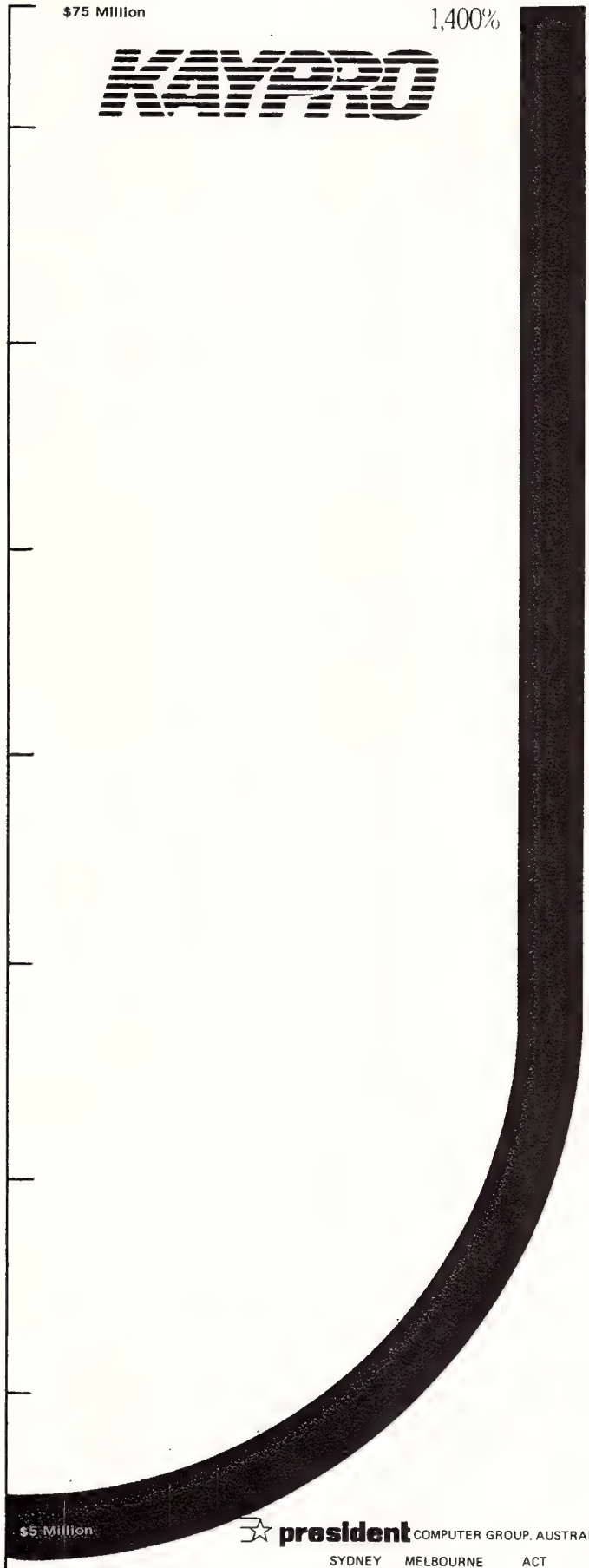


**SPECIAL REPORT No. 1**/DOROTHY J. SAMUELS

## COMPUTERS V. THE PEOPLE

# No Place To Hide

In America the info-tech revolution has undermined individual privacy – often without consent or knowledge as the US sets the pace. For Australia and the world, the following warnings are salutary for us too.




# IF YOU THINK IBM IS THE ONLY GAME IN TOWN, WE'RE GOING TO THROW YOU A CURVE.

Whenever we hear claims that IBM is destined to be the sole survivor in a personal computer marketplace supposedly littered with dying independents, it reminds us of Mark Twain's comment about the reports of his demise being greatly exaggerated.

**There is life after IBM.**

While there is no denying IBM's stature in the industry, to think they're the only game in town simply doesn't compute. Just look at our own sales curve.

In the past fiscal year, Kaypro sales grew 1,400%. In fact, we are now the fourth largest seller of personal business computers in America (after IBM, Apple and Tandy).

There is, it would seem, life after IBM.

Our success is hardly a fluke, given our 30 years of electronics manufacturing experience. Nor is the strength of our diverse product line unique. We can point to dozens of independent computer companies with equally strong barometers of success.

And therein lies the critical issue. For, though pleased with our own success and the continued vitality of the industry as a whole, we are concerned that all the predictions of an eventual IBM stranglehold on the market might create something of a self-fulfilling prophecy. As a business publication noted recently, many industry analysts believe that the media-fueled IBM mania has had a harmful effect upon the industry, discouraging investor and consumer confidence in companies whose successes warrent that confidence.

Capitalizing on this unjustified fear, IBM urges consumers to huddle under the security of its Big Blue umbrella. Only then does the customer discover that IBM is selling the very guts of a personal computer system as expensive add-on "extras" – things like software to make the computer useful, two disk drives to store information, or a screen to view the work being done. By the time a full IBM system is assembled, the buyer has usually paid about twice what a comparably equipped all-in-one Kaypro would cost.

IBM is certainly free to market their machines as they please. But it does make us wonder what might happen to the downward trend in computer prices if IBM – "the only company able to overcharge," as one newspaper reporter not afraid to draw attention to this issue recently put it–were to gain the vise-grip on the market that some people fear.

Some industry analysts also fear that the IBM juggernaut threatens the innovative drive and technological momentum that made America's personal computer industry what it is today. After all, IBM did not invent the personal computer. It merely used its marketing power to push its way into a new industry that had already been created by smaller, more innovative firms. As a recent commentary in the industry's magazine of record, InfoWorld, put it: "The record shows that IBM consistently stood in the way of progress, while all innovation came from startups."

"At Kaypro, we don't think any one company can monopolize the personal computer business, and our own sales figures prove the point. But we're also not blind to the attractive power of the IBM logo. That's why we'll always go them one or two steps better by providing much more computer at much less cost.

To show what we mean, we'll soon announce a startling new incentive to encourage consumers to evaluate our computers up close. There is an alternative to IBM. Watch for us.

KAYPRO

Sincerely,

David L. Kay

VICE PRESIDENT,
MARKETING AND PRODUCT PLANNING

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KAYPRO'S FISCAL '83 GROWTH

As we arrive at the watershed year 1984, George Orwell's vision of a society devoid of privacy no longer can be viewed as mere science fiction. In the years since Orwell penned his classic novel, *1984,* technological advances have made it possible for computerized databanks to communicate with one another—and what they're communicating about is us.

The advent of a vast computer network storing the most intimate details of our personal and business lives has altered our notions of privacy in a fundamental way. To a disturbing degree, the computer has become "Big Brother" and those who have detailed dossiers on our lives have become our "thought police."

Though it has enhanced modern lifestyles in many ways, the revolution in information technology has exacted a terrible, unintended cost on individual liberty. This immeasurable cost is the dark side of the truly positive advances in computer science that have occurred over the last 2 decades. In a way, we have become victims of our own success.

Walter Cronkite sums up this dilemma in his foreword to David Burnham's excellent account of *The Rise of the Computer State* (Random House, 1983). "Without the malign intent of any government system or would-be dictator," writes television's venerable journalist, "our privacy is being invaded, and more and more of the experiences which should be solely our own are finding their way into electronic files that the curious can scrutinize at the punch of a button."

Unless this trend is reversed, we may soon find ourselves in a world where the ability to control public access to personal information is, for all practical purposes, a thing of the past.

## Under Surveillance

The magnitude of the problem can be gauged by the truly staggering amount of information on our lives amassed by the government and business. To an astonishing degree, humanity today is interrogated, watched, measured, and counted. Surveillance and electronic recordkeeping of nearly every routine activity, from bank deposits to medical visits, has produced greater efficiency and security. But it's also responsible for a discernible erosion of our ability to live our lives free from outside scrutiny.

Illustration: Bill Russell

The US federal government currently maintains an average of 15 files on each American, according to estimates by the Office of Management and Budget (see "Report On Privacy: Who Is Watching You?" *U.S. News & World Report,* July 12, 1982). Closer to home, state and local governments use computers to keep their own files on citizens. A study conducted 2 years ago by New York State's Committee on Open Government, found that state agencies operated 1,776 separate data systems containing 10,779 categories of information about New York residents. Each system contained between two and ten million records.

In the private sector, the dossiers multiply. Retail credit bureaus maintain files on over 150 million Americans. Banks record your checks and other financial transactions. Credit card companies track your purchases and repayment patterns. The telephone company notes the numbers you have called. Insurance companies keep files of the most intimate details of your medical care, from abortions to psychiatric treatment. Taken together, these records comprise a fairly complete, if not always accurate, picture of our lifestyles, our personal tastes, our associations, and even our political beliefs.

Much of the data collected about us is necessary for the performance of a legitimate government or business function. But once the purpose for the data gathering has been served, there is scant justification for keeping this information on file.

It is important to note that most of the information maintained, including sensitive health and financial records, is gathered without any guarantee of confidentiality. Insurance companies, for example, typically require individuals to waive confidentiality as a condition of coverage. Once information is on file, experience has shown that the temptation to use it often proves irresistible. Pledges of confidentiality have been known to fall by the wayside at the mere mention of "national security" or the display of a policeman's badge. Even United States Census files, historically the most sacrosanct of all government records, were opened on at least two occasions: to track down draft resisters during the First World War and to locate Japanese-Americans for roundup into detention camps at the onset of World War II. Left to themselves to balance privacy interests against other concerns, business and government will nearly always let privacy take the fall. The phenomenon recalls Edmund Burke's warning over 200 years ago that "(t)he true danger is when liberty is nibbled away, for expedients and by parts."

## No Place to Hide

For individuals with a juvenile arrest record or a history of psychiatric treatment, the existence of these files is a ticking time bomb. Release of the information in these files can result in public embarrassment and in many cases, can lead to the loss of a job. The time when a person could move away from his or her past vanished long ago.

Even for those with "nothing to hide," the specter of computer data banks tracking one's every move has enormous impact. As the former U.S. Senator Sam Ervin, Jr, observed at a 1971 Senate hear-

ing on federal data banks, computers, and the Bill of Rights. "[O]nce people start fearing the government, once they think they are under surveillance by government, whether they are or not, they are likely to refrain from exercising the great rights that are incorporated in the First Amendment to make their minds and spirits free." In other words, the knowledge that we are being watched, that everything we do might be recorded, makes us alter the way we live, sometimes in ways we may not even perceive. After a while, conformity can become second nature. Ironically, the maintenance of computer files, which law enforcers find so useful in the detection of crime, forces everyone to look over one shoulder, just like a hunted criminal.

The argument that people with "nothing to hide" shouldn't be concerned about privacy is frequently heard. The Reagan administration used this reasoning to defend its requirement that elderly and infirm recipients of Supplemental Security Income reveal their income tax returns as a condition of receiving future benefits. People "with nothing to hide" should not object to making their tax returns public, the Social Security administrators declared. This statement drew a challenge from syndicated columnist Jack Anderson, who suggested that these officials submit *their* IRS files for review. Judging by the response, only one official had "nothing to hide."

## Ominous Developments

Of course, government dossier-building did not begin with the invention of the computer. Goodness knows, J. Edgar Hoover and his boys did an effective job of trampling on individual rights with their manually kept systems. But the relative inefficiency of index-card notes was a safeguard of sorts. The new technology, which facilitates interaction between the separate data banks of government and business heightens the potential for abuse.

Perhaps the most ominous development of recent years is the rapid growth and nearly universal acceptance of computer-matching programs whereby one agency checks its records against another's, usually in an effort to detect fraud and waste. On a massive scale, information collected by one agency for a specific, often routine and innocuous purpose is being used toward a far different end. Consider these examples:

Interaction between the separate data banks of government and business heightens the potential for abuse.

- The Selective Service System cross-checks draft registration lists with Social Security and motor-vehicle records to apprehend young men who have failed to register.
- The Federal Immigration and Naturalization Service, in its effort to locate illegal aliens, sought access to the New York City Board of Education's computerized file of one million students to gather a list of Spanish surname households.
- The Internal Revenue Service matches "life-style" data maintained by various business information services with its own internal files to trigger tax audits.

Whatever the stated purposes of these computer-matching programs, the technique raises important constitutional issues regarding the presumption of innocence, Fourth Amendment protections against unreasonable searches and seizures, the right of personal privacy, and the right to protect oneself from self-incrimination.

Computer matching programs were utilized by Joseph Califano, Jr., when he served as Secretary of Health, Education and Welfare during the Carter administration, to locate federal employees illegally receiving government benefits. Within the Reagan administration, this practice has become more prevalent. With little thought to the far-reaching consequences, we have embraced this technological innovation. The only limits, it seems, are the bounds of good taste and the imagination of the controlling bureaucracy.

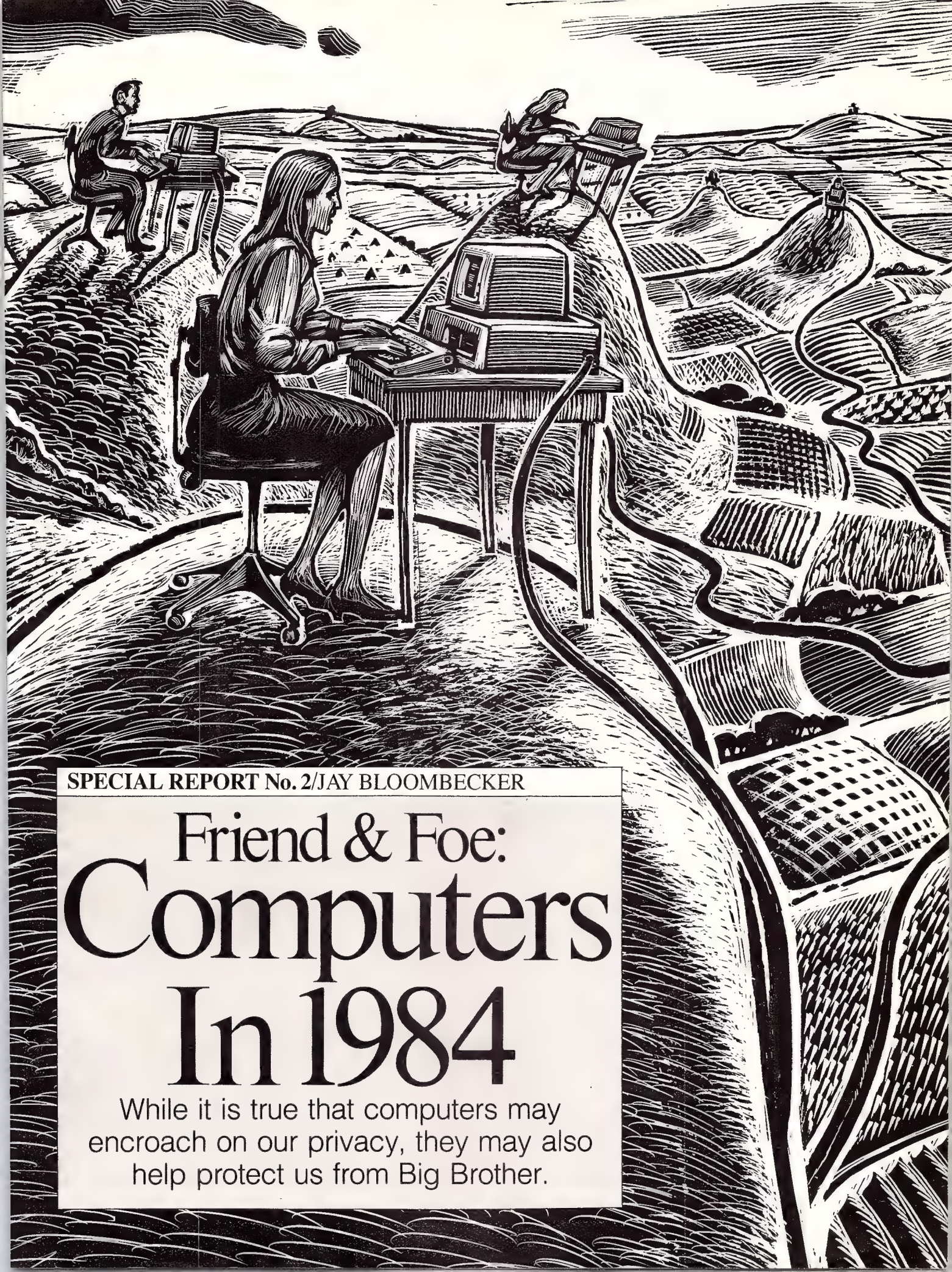
## Back to Basics

Ironically, the computer-matching methods used to ferret out fraud and waste are often themselves wasteful and inefficient. A 1982 New York Civil Liberties Union report makes the case that New York's Wage Reporting System—the largest state-level computer-matching program—is "an extraordinarily clumsy and wasteful operation" that "costs far more and saves far less than its proponents claim." The report suggests that less intrusive steps, such as simplifying the rules for determining eligibility and calculating benefits, could be more effective in combating abuse in public assistance programs.

These concerns regarding computer-matching, the subject of Senate hearings in December of 1982, will be the focal point of additional Congressional scrutiny in the coming months. It is increasingly apparent that the legal protections so carefully worked out in the Federal Privacy Act of 1974 have been largely outmoded by the new computer age. What is needed is creative and bold legislation to strictly limit the collection, maintenance, and dissemination of personal information. Equally important is the need for public officials with the courage to enforce it.

Supreme Court Justice Louis D. Brandeis described privacy as "the right to be left alone—the most comprehensive of rights and the right most valued by civilized men." If we care about preserving that right, we must act now. ■

*Dorothy J. Samuels, an attorney, is a former executive director of the New York Civil Liberties Union.*



SPECIAL REPORT No. 2/JAY BLOOMBECKER

# Friend & Foe: Computers In 1984

While it is true that computers may encroach on our privacy, they may also help protect us from Big Brother.

Like Shakespeare's works, Orwell's *1984* begs rereading. Like the Bible, you can use it to support any number of arguments. I recently reread my high school copy and discovered both an old and a new perspective on the novel.

Some time ago a group called the Fleet Street Corporation issued a letter that read, "Dear Reader: Remember George Orwell's jolting novel, *1984*? His vision of every home wired into a distant central computer with its large information banks seemed like a science fiction fantasy. Well, look up. Orwell's future is almost here . . ."

Yet nowhere in *1984* are computers mentioned. Novel "writing machines"—yes, "Speakwrites"—yes. But computers—no.

Nonetheless, it is difficult to imagine Orwell's negative utopia functioning without computerized help. How else could the information about the large population of Oceania have been monitored and correlated 24 hours a day?

How else could the ruling party have produced and kept track of all of its information? It takes lots of memory and time to keep up the kind of system depicted in *1984*. In the novel, a branch of the government, the Ministry of Truth, exists to do nothing else. "Who controls the past controls the future. Who controls the present controls the past," Orwell explains.

Perhaps the use of computers to construct a single "reality," the only purpose of which is to perpetuate the ruling party would be the gravest computer crime imaginable.

But Orwell believes there's a greater evil. To him, information control is second to the massive assault on human dignity that *1984* represents.

### A 1984 Without Computers

Orwell is not only saying that we must keep our information channels free from abuse. He believes that the concept of information control, if logically extended, touches the soul of the human being. Thus the ultimate goal of the totalitarian state is the abolition of all humanity. He gives the following explanation in the text.

"We are not content with negative obedience, nor even with the most abject submission. When finally you surrender to us, it must be of your own free will. We do not destroy the heretic. . . . We convert him, we capture his inner mind. . . . Never again will you be capable of love or friendship, or joy of living, or laughter, or curiosity, or courage or integrity. You will be hollow. We shall squeeze you empty, and then we shall fill you with ourselves."

Nowhere in *1984* are computers mentioned.

This passage makes it obvious that computers are not necessary to enslave a population.

What is not so clear, however, is the extent to which the use of computers can erode our privacy and whether a sense of lost humanity will result.

Examples of computer uses that threaten privacy are not hard to come by these days. A company called National Incarceration Monitor and Control Services in Albuquerque, New Mexico, is selling microprocessor-based ankle bracelets for "correctional" use. A person in Lake County, Illinois, or the Second Judicial District of New Mexico may be sentenced to stay at home and wear a bracelet rather than take up space in a county jail. If the individual strays from home, no signal will reach his telephone, and the sheriff's office is automatically notified that a probation violation has occurred.

In a move believed to be unrelated to the impending return of Hong Kong to greater Communist Chinese control, the government of Hong Kong is experimenting with a system of electronic surveillance of automobiles as they pass checkpoints along Hong Kong's major roads. Every car on Hong Kong island would be fitted with a device that would identify the car electronically to the 300 checkpoints set up to account for the use of Hong Kong's roads. A reporter for the *Los Angeles Times* called the plan "Orwellian," but government authorities claimed to be doing nothing more than applying advanced technology to Hong Kong's traffic problems.

The American Civil Liberties Union (ACLU) continues to pursue litigation against the Los Angeles Police Department's (LAPD) Public Disorder Intelligence Division. Documents released so far suggest that a private organization called Western Goals has been distributing raw intelligence obtained from LAPD about a number of people whose activities were far more easily classified as political expression than attempts to overthrow the government.

Though it is still unclear whether the organization distributed any information collected by the LAPD, it is known that the LAPD kept files on Mayor Tom Bradley of Los Angeles and a number of other prominent figures.

### New Energy

Computers are a new form of energy. Those who take best advantage of them will gain the most power in the years to come. Though the economic and political power of large institutions or the government may help computer users to expand their power, individual users have opportunities to become influential, too.

While rereading *1984*, I was struck by ways in which computers may help protect us from totalitarianism.

In the novel the Party sets out to sever each individual from all relationships that might challenge its power. Orwell describes the individuals of this society like this: "Cut off from contact with the outer world by incessant wars and limited communication facilities and with the past by information control, the citizen . . . is like a man in interstellar space not knowing

which direction is up and which is down."

Unlike the 1984 of the book, ours is marked by a growing access to information. Making "informational connections" with others throughout the world is becoming increasingly simple.

The dispersion of computer power among many users is a great safeguard to freedom of thought. Within limits, the idea that no power can completely control the means of communication is comforting. It is not without a certain smugness that I read about Rumania clamping down on typewriter ownership or learn about how difficult it is to get a computer system in Poland.

Not only can we use computer expertise to communicate with one another, but we can network, form instantaneous groups, meet, discuss, agree, and disappear before any human monitoring or intervention is possible.

Computer power is not only more dispersed, it is more accessible to all of us. The dislocation resulting from the economic importance of the computer and communications industries are forcing those with economic power to invest more in new people, new products, and new ideas. This year, 1984, offers mobility for the computer literate, and even more for the computer wizard. Many computer users are being forced to hire computer-literate people, regardless of their politics or their humanity. They may even hire people like you and me. In short, it's not always easy to tell whether Big Brother is winning or losing.

Look around you. Are the people in your office loving or friendly? Do you often feel joyous or courageous? Is the sound of laughter seldom in your ears? Contrary to Orwell's predictions, we have not lost our humanity.

More devious and more threatening than *1984* is a co-opted society, in which we sacrifice our humanity to gain the material benefits of life made easier by machines. Under either scenario, the computer can be a tool for more or less freedom, depending on how we use it. ■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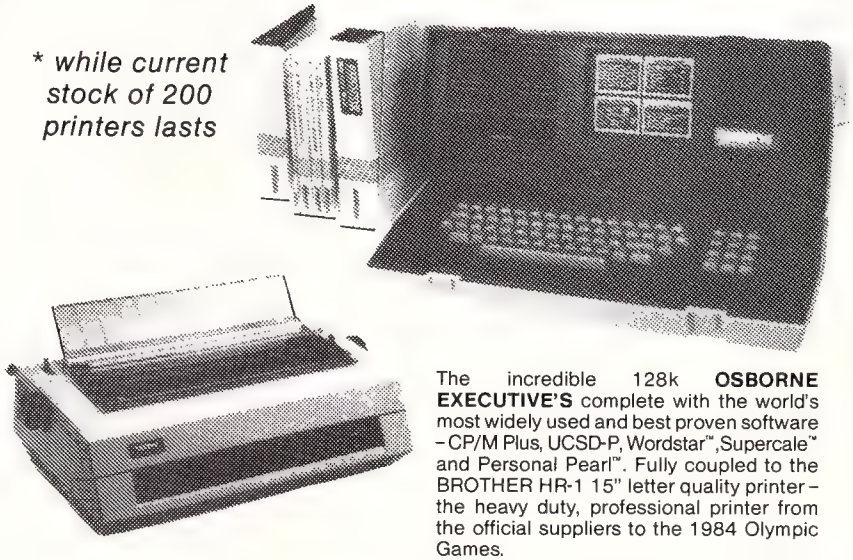

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# Hartley Users Beef

Hartley still dominates the computer package market for accountants in Australia, but not all users are ecstatic...

As Today's Computers went to press the third Hartley International Users Congress got underway at Surfers Paradise, Queensland.

User criticism was levelled largely at the big selling 3900 HAPAS accounting package. It parallels a period also when Hartley is launching into MS-DOS operating software and looking at a personal computer-based new package.

Hartley users were critical of the performance of HAPAS and the speed of service offered as backup. The flak, however, was not universal and at this stage appears to offer no major threat of reprisals or users changing packages.

Said Mr Norm Martin of Carricks, a former president of the Hartley user group in Victoria: "We've always had problems with their software and they keep on ducking the issue.

"I think the aim of the congress is to brainwash users and whitewash Hartleys."

Colin Barr, a partner in Davidson and Mein of Sydney and the immediate past president of the NSW Hartley Users' Group, disagrees: "The Hartley 3900 system is sophisticated and it enjoys varied use – bugs will appear where in a normal commercial environment they would remain undiscovered."

He adds: "From my own international experience, the Hartley 3900 overall is the best available in the world today for the professional accountant. Hartley users' congresses are of tremendous benefit to users and this year's congress will be no exception."

The current president of the Victorian User Group, Mr Bill Somerville of Williams and Somerville, said that some Victorian users subjecting the system to large workloads had experienced problems. But he said his own firm was satisfied with the system. "We have tried not to expand the system too quickly," he said.

Mr Eric Robins of E. K. Robins, Harris and Co, a former president of the South Australian user group and one of the largest users of the package, said the principle behind it was very sound and had been since 1975.

"Where they ran into trouble was moving from Wang hardware to their own 3900," he said.

Mr Robins said that Hartley had also tended to release software without putting it to adequate trial, which left the user trying to sort out the bugs. "That's acceptable three years down the track, but 10 years down it smacks of trial and error," he said.

The Western Australian User Group president, Mr Ian Cook of Pannell Kerr Forster, echoed the problem.

"It's a problem of not field testing the product before they send it out," he said.

Mr Cook said the Western Australian users were now directly supported from Hartley's Brisbane office, and that service had considerably improved since the WA office had been cut out of the chain of communication.

The NSW User Group president, Mr Jim Treatt, was less critical than his interstate counterparts. "Hartley has got its act together much better since its financially troubled days," he said.

The managing director of Hartley, Mr Tony Paranthoiene, said that the problems were the result of continuous development of the package in Brisbane, necessitating constant consultation by area managers with the research and development team and making it difficult to keep disseminated information up to date.

"An elapsed time of 2 years was involved in completing the HAPAS package. A lot of testing was done, but we have since found and rectified a lot of problems. The problem is ensuring staff Australia-wide are up to date with those improvements," he said.

**Welcomed**

Despite the bugs, the users congress was welcomed by all user group presidents as representing an opportunity which allowed them and their group members to compare notes and problems and present them directly to Hartleys.

"I certainly intend to speak to them individually and collectively about the problems," Mr Paranthoiene said.

The congress is a unique innovation in the industry, according to Hartley.

"I'm not aware of any other similar organisation which puts on a conference the size of this one," Mr Paranthoiene said.

He said that the alternative to the congress was to conduct intensive one-day training sessions, but that such sessions were generally characterised by a low retention rate among clients.

*David Shires is a reporter with The Australian Financial Review.*

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# Psst! PCs In The PS

For the largest single user of high technology, the Federal Government has been surprisingly cautious in the area of personal computers. The most recent survey showed only 500 personal computers were in operation in the Public Service last year. A further 1,800 are expected to be installed this financial year, but some 1,500 of these will replace old equipment and outdated work methods.

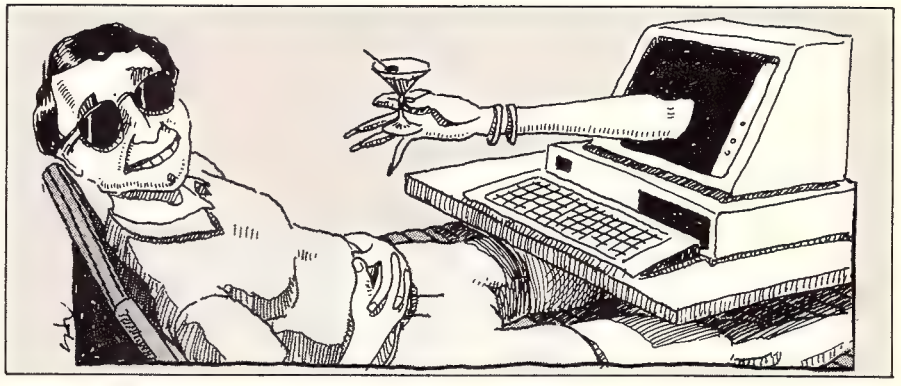
The caution is best explained by the pervading financial restrictions in government departments which discourage experimentation in purchases. Almost every department is already linked to its own mainframe computer, many of which allow terminal access for personal computing.

Government use of personal computers is expected to grow dramatically in the next few years with lowering cost, improved technology and easier mainframe linkup. But departments will continue to weigh up small computers' administrative intrusion into a mainframe setup, and their advantages when tested against more than 6,000 terminals already in use, before committing limited resources.

A survey of 34 government organisations last year found that 10 had one personal computer or less, 7 had between 2 and 5, and 13 between 6 and 19. Three departments had between 11 and 50 personal computers and only the Defence Department had more than 50.

Eight expected to have between 11 and 50 by the end of the year and 3 expected to have more than 50.

Of those surveyed, 20% nominated information retrieval as the most common function of their personal computers, 16% said spreadsheet packages and slightly fewer named word processing and engineering and statistical computation. Twelve per cent were mainly involved in computer awareness training, 11% in financial processing and 6% in project control.



Departments generally try to ensure computer equipment and software capability is compatible with the mainframe computer. But no one model of personal computer predominates due to the variety of mainframe models and the freedom of each department to call its own tenders for purchases under $10,000.

The inaccessibility of earlier personal computers to corporate data has tended to limit use to specialist workers who can operate outside of the ADP. The Health Department has discouraged the use of personal computers finding it can service users through terminals linked to its mainframe.

The chief advantage of personal computers, according to the Public Service Board, is the psychological factor of independence from the main system. They allow the user to operate without the constraints of the mainframe system and without the same feeling of supervision and control.

The present users are generally non-computer employees, though across the full range from senior management to school leavers. In the Public Service Board, for example, the microcomputers are used by finance employees measuring expenditure against budget, personnel monitoring recruitment intake and officers following currency fluctuations to work out allowances for overseas-based public servants.

Personal computers are the chief training tool for senior management. Public Service Board policy is that all second division officers should possess a basic level of computer awareness since they are the ones who manage the systems. Second division officers are trained on personal computers because of the more relaxed nature of the learning experience.

While independence and training value are strong drawcards for personal computers, their working advantages have gained increased recognition since the release of Public Service Board guidelines on personal computer use last September. The board listed achievable benefits for departments ranging from bypassing delays caused by ADP backlogs to lower cost/performance ratios than the central computer.

The guidelines suggested that a shorter lead time in achieving results could be achieved by the use of a personal computer instead of the department's ADP because the personal computer allows the user to set priorities and schedule completion.

On the cost side, activities performed by a personal computer might not be costed directly to the section whereas

data processing from the ADP section might be costed each month.

Other possible gains listed in the guidelines include: improving quality of reporting by allowing users to do personal word processing; improving control over all facets of processing; reducing dependence on the ADP section; implementing low-development priority systems; and allowing high-level management functions to be performed by a broader selection of staff who may not have extensive training in the theory of the techniques.

The Public Service Board expects the use of personal computers to increase exponentially in the early 1980s. Their use and purchase will be managed by the board's guidelines in a bid to avoid the negative effects of personal computers found in overseas government experience. A report by the US General Accounting Office found systems devised by non-professionals had a greater potential for using erroneous information. Few organisations had software and documentation standards or a knowledge of what applications on the computers contributed to software redundancy.

***A PANEL period contract has recently come into effect under Department of Administrative Services guidelines.***

A panel period contract has recently come into effect under Department of Administrative Services guidelines for purchases over $10,000. The panel was tendered in September 1982 for a 4-year period on the basis of price and performance. But it is subject to review in accordance with changing requirements and technology.

The 7 suppliers on the panel are Archives Computer (Aust), Insystems, International Computers (Australia), Hewlett-Packard Australia, Prime Computer of Australia, Sigma Data Corporation and the Australian supplier Eracom. All the companies have offices in Canberra.

Purchases under $10,000 are handled outside the panel period, and departments are able to do their own tendering. The Department of Administrative Services offers advice on equipment available.

The department also follows a preference policy whereby Australian suppliers are given a 20% margin of preference. Under policy introduced last January local suppliers are given advance notice of forthcoming purchases and guidance on how to do business with the Government.

*Eric Campbell is a senior reporter with The Sun newspaper. He is based in Canberra.*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# Software Ownership

A practising solicitor looks at the traps created by the Federal Court's decision on copyright protection in the Apple Case.

The software industry in Australia received a nasty shock last December in the shape of the Federal Court's decision in the Apple Case. The decision held that copyright protection does not extend to computer software.

Although the case concerned software on ROM and EPROM silicon chips the judgement was wide enough to cover software in a variety of forms, whether source or object code, such as disks, magnetic tape and printouts.

The decision did not differentiate between operating system software and application software.

What does the Apple decision mean to the software user? Can you now copy any program without fear of complaint from the manufacturer?

What are the risks of purchasing pirated programs from vendors who may be potential defendants in infringement proceedings? The price savings may be enormous, but if your supplier is caught up in expensive legal proceedings will you be assured of maintenance? Could you be deprived of the use of the program even where it was acquired innocently?

The answer to these questions is that the user's position is probably no different now than it was before last December. The reason for this is two-fold. First, the Apple decision has been appealed. If Apple wins we will be back to the pre-December position.

Second, even if Apple fails in its appeal and the full Federal Court confirms that copyright does not subsist in software, the Federal Government has announced that it will undertake legislative action, retrospective to December if necessary, to ensure that software manufacturers are given adequate protection.

Although the Government is not committed to using the Copyright Act as the basis for such protection, this is the likely course of action, at least in the short term.

Copyright protection, of course, is not the only means by which software manufacturers seek to protect their investment. Apart from protect mechanisms that are written into the programs, designed by the programmer to inhibit copying, the principal areas of protection can be found in the law of contract, breach of confidence (trade secrets) and patents.

***COPYRIGHT protection is not the only means by which software manufacturers seek to protect their investment.***

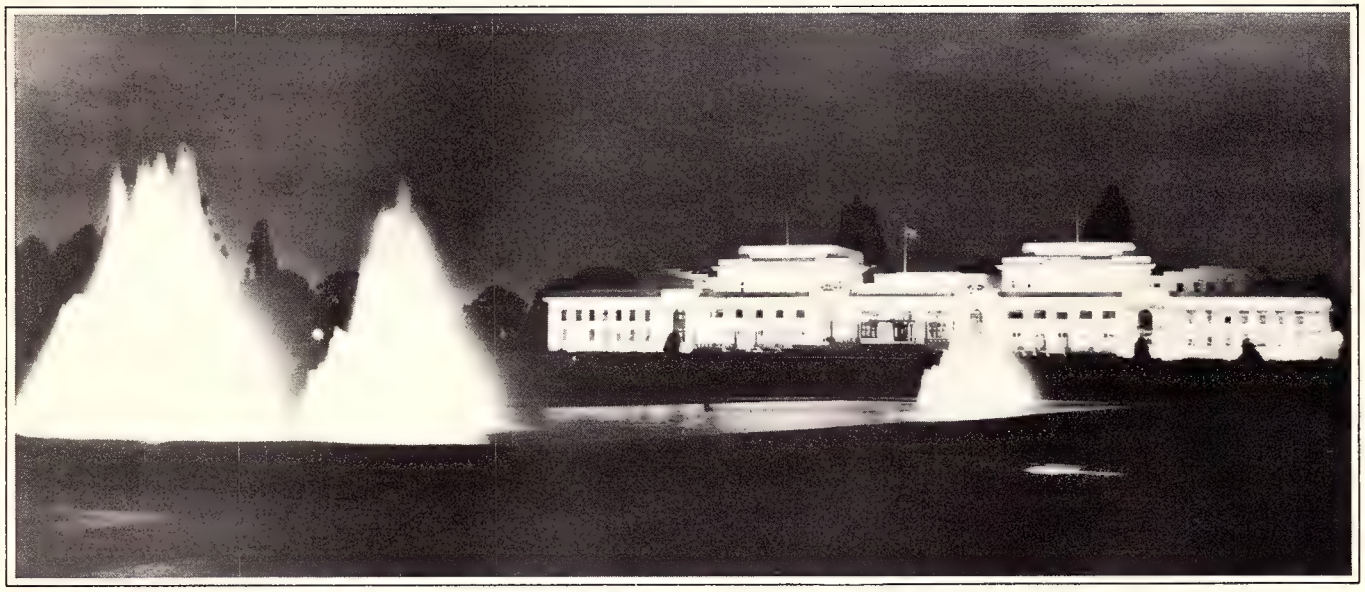
A convenient way of assessing how these are relevant to software users is to look at 2 different user groups. Both involve application software. The first group is a user of microcomputer software and the second group is a user of application software that is specifically written to the user's requirements, or is distributed in limited numbers due to cost factors and the specialized nature of the program. For the sake of simplicity I have referred to this second type as customized software.

If you are part of the first group your interest in software may go no further than seeking the latest program to run on your PC. You might be forgiven for feeling that the question of copyright in ROMs and integrated circuits and reverse engineering is too remote to affect you.

Microcomputer programs do pose special legal problems but with this sort of software the real issue will not be whether your use of a pirated program is an infringement of copyright, or some other right, but whether the owner can enforce his remedies.

Groups who publish their intention to pirate software, such as Software Liberation, may be easy to locate, but the owner of a microcomputer program has an almost impossible task in preventing unauthorized copying by individuals who do it for their own purposes and not for widespread distribution.

A more likely situation in which a user will be at risk is where the manufacturer has succeeded in an action against the distributor of pirated programs. As part of the award it obtains a court order entitling it to require the distributor's customers to deliver up the programs to the manufacturer, or pay for the right to use them. Such an order is more likely to be given in cases where it is reasonable to assume that purchasers



**Federal Parliament:** *An undertaking to provide protection if necessary.*

knew that the programs were pirated.

Many microcomputer software programs come shrink-wrapped with a form of licence attached to the user manual, and the floppy disk set into an inside pocket. The licence will invariably contain restrictions on the use of the program and will prohibit copying and distribution to others.

The enforceability of such licences against individual users is uncertain. Unless you were able to review the terms of the licence before purchase, it is questionable whether a prohibition on copying, in the absence of copyright protection, would be enforceable.

The law relating to breach of confidence and trade secrets is also relevant to these issues but is untested in Australia as far as software is concerned. In simple terms it concerns a disclosure of a trade secret to someone in confidence. Software manufacturers would claim that these conditions are satisfied by distribution of the programs in object code form only, and the restraints imposed on copying under the licence.

If a licensee breaches this confidence by copying the program for widespread distribution can the manufacturer restrain you, as one of the licensee's customers, from using the unauthorized copies? The answer is, quite possibly.

Again, it may depend on whether the buyer knew that the program was pirated. Even then, the manufacturer is likely to move only if it can obtain a general order against all, or the majority, of the licensee's customers. This would require clear evidence that customers would have known that the programs were pirated.

The question of patent protection can be dealt with very quickly. Although there have been several applications for patents of software in Australia, they have not been successful. At the present time, Australian users of microcomputer and customized software face no real risk that their program infringes a patent.

Is the position in relation to customized software any different? In one very important respect, the answer must be yes.

The difference is found in the fact that users of customized software are limited in number. Because the unit cost of such programs frequently exceeds $100,000 the manufacturer can afford to restrain unauthorized use on a case-by-case basis. This is certainly true in any claim of copyright infringement.

Even if the manufactuer sues only the party that made the infringing copy the user may suffer severe problems if the action prevents the user's supplier from providing maintenance. For this reason the licensee of software should always insist on a clause in his licence giving the user recourse against the supplier in the event that the program infringes any copyright or other proprietary right of a third party.

Apart from copyright, the manufacturer of customized software will rely heavily on contractual terms to restrain unauthorized use or copying of programs by users. These typically prohibit copying except for back-up purposes and frequently limit the licence to use of the program on a single, designated CPU.

They also prohibit disclosure to third parties of any information relating to the programs.

These provisions are designed not only to give the licensor a direct contractual hold over the user, but also to preserve the confidential basis on which the programs are licensed. If this confidence is breached, apart from the remedies that the licensor may have against its licensee, the licensor may very well have the power to prevent a third party from using the software.

The moral: In dealing with expensive customized software, make sure your vendor or licensor is the owner of the program, or authorized to licence it to you. Otherwise there is a genuine risk that you may one day find yourself with a lot of expensive hardware but no software to run on it.

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*Timothy A. Woodhouse is a practising solicitor in NSW with a major Sydney firm.*

PCS/LAUREL ALLEN

# 'I'm 40, I Hate PCs, But I'm Gonna Have To Learn'

## A STORY ABOUT 'TERMINAL' RESISTANCE BY OZ MANAGERS

Conflict in rapidly computerising corporations suggests that executives over the age of 40 tend to resist PC mania. Managers from the computer-pioneers, Aetna Life, talk about how they feel about the process.

"You can't teach an old dog new tricks," explains soon-to-retire managing director of Aetna Life Australia, John Maxwell, 63. He definitely doesn't want a PC on his desk.

"Terminal resistance" among older executives at Aetna illustrates one of the conflicts within organisations facing the desk-top computerisation.

Ken Veit, 47, vice president of Aetna Life international head office in Hartford explains:

"There's fall-out at around the age of 40. Above that age, there seems to be direct inverse enthusiasm for desk top systems."

Mr Maxwell, who frankly says he "is not a PC nut", nevertheless controls what Mr Veit describes as the most efficiently computerised subsidiary office of the entire Aetna group in Australia.

In 1972 Aetna made a decision to introduce advanced computer technology into the company, in a drive to improve its image and performance, but vice president, and director, John Veit only got his desk top system to work on himself at the end of 1983.

"I've gone through all the agony of learning about computers," he says.

"It's not so difficult. A person of average intelligence can do it easily. It takes time but it's not as painful as you think."

"I've just got into it in the last few months. I've had an IBM-PC to work on. I took it on in the space between Christmas and New Year – it is traditionally a quiet time, and I had a chance to get into it.

"I used Lotus 1-2-3. It's got an excellent tutorial disc. I just sat down with it. I talked to the computer, and it talked back to me.

"You can begin to realise what you can do with it", he says. "You can do calculations and updates so rapidly.

"Before, I thought it was a conspiracy of the computer industry to turn us all into typists. But now I know how the monster works, I see it's not like that at all.

"Many executives over 40 are terrified. They make brave statements, but really . . . they feel real fear," says Mr Veit.

Aetna has a communications network which extends from Sydney to New Zealand and all capital cities of Australia other than Perth. Aetna has established work stations on a ratio of one terminal to two people.

Once he surmounted his own fear, Mr Veit found it easier than he anticipated:

"I gained confidence fairly rapidly.

It's true when you first see the manuals, you have a feeling of stark terror – that's the initial feeling.

"But I found that after about 10 hours, I could do most of the things that I wanted to do.

"I found the most difficult part was getting the thing turned on... you have to format the discs and then it says enter the password. If you can't get it right, it just sits there humming at you – it can be very frustrating."

John Veit set about his computer education task in a practical way.

"I made up some real-life problems," he says. "I tried some simple income statements and some graphics. I tried keeping track of all our international travel plans – we have people flying all the time – I was curious to see whether it would interface with online airline guides.

"I looked at comparisons of the relative sizes of our various organisations. I said, how about if we kept a data base of all the assets, sales and employees – can we then produce a chart showing our business outside the US?"

Probably the most difficult part is the housekeeping, he says.

"We have an IBM XT. You have to format the disc, and if you can't work it out, you have to grind your teeth for 15 minutes. But once you get it started, it works the way they say it does.

"To get real satisfaction, you have to understand why you want it," he says.

"We bought it for financial modelling, and to check over plans submitted, and to test assumptions – to look at investment earning, and sales growth."

The benefits for Aetna's international operations are clear. Faster descision-making in the face-to-face situation is one.

"Because of the level of computerisation in Australia, as opposed to other subsidiary offices, when we visit here, we can make immediate decisions, rather than reaching tentative agreements, and then flying back to the States, and then exchanging letters.

"Before we got it, what I would do was pick up the phone and call John Maxwell and I might say:

"Gee, your assumption looks a little strange – how about if we did X. We'd talk about it, and then I'd send him a letter.

"Now we can test assumptions very quickly," he says.

"Right now, we are looking at a new line of insurance – in this situation, we can get answers quickly. We can look at the financial impact, and get answers in two hours.

"Before, it would have gone into the black box of the actuarial department to the mainframe, and would have stayed in there a day, a week, maybe a month.

"It's probably speeded that sort of work up by a factor of 5 or 10.

"Australia is ahead of the US in computerisation," says Mr Veit.

***MANAGEMENT is not dextrous... It's very bad with its fingers.***

Despite the innovations in high places, Aetna Life is still a bit theoretical about the computer revolution.

Like many large organisations, it finds the transition from mainframe attitude to desk-top PC power an awkward process.

Cost is also an issue. "Why get PCs, for 10 grand, when you can just add on a multipurpose terminal for $3000?" asks DP manager John Small.

"We're a little bit young at it", admits Small, talking of the role of PCs in Aetna management. "The PC world is a bit new to us.

"I don't know that this generation of managers will use them anyhow, and I don't know if they should."

Today, management could get into Aetna's mainframe information if they wanted, and some do.

"We are extending the information center to spreadsheets," says Small, indicating two silent IBM-PCs in the corner waiting for management to plunge in.

Aetna already has a mainframe spreadsheet available on every terminal, called Maxicalc. In theory, each management section could do its own budget and then just layer it in with the rest.

"But management is not dextrous – they are bad with their fingers – and maybe they don't need to get into computing, because they spend their time interacting with people, reading the latest financial information, attending seminars," suggests Small.

One of the things Aetna is developing this year is an information centre. "The way we will make this work is to take the information off the mainframe and then work it up on the PCs," says Small.

But to make mainframe information available for people to use you need non-computerized languages. You want to let management get into that information without having to use a data processing person. To do this you need an English-type language, without any code. You want to be able to say "search for this", and "print that".

But also, you need a language that gives experts shortcuts once they get good at it.

John Small would like to have one of the new English-type languages to put on his database so that Aetna managers could easily ask questions of the Aetna data. At a cost of around $50,000, he says, it would be worth it.

"It's an end-user facility," says Small. "They have to do some training. They have to get in and do it themselves; that's the principle of the information centre. DP doesn't get the information out for them – just makes the right equipment available.

"A typical information query would be for corporate-type summaries; manpower, revenue, assets, business share.

"If a manager were to ask a question of the database, it would have to be phrased a certain way. If the question, for example, was: can I have a summary of the total sum insured by premium of all the contracts still in force sold since January 1979? Then Aetna's current DP language limits mean that to get that out of the database management has to say: Search policy file select risk commence date 0101 1979 total table summary print table sum insured premium. Management can do that now if it wants to.

"The general manager may not do it, but his offsiders will do it at their own terminals."

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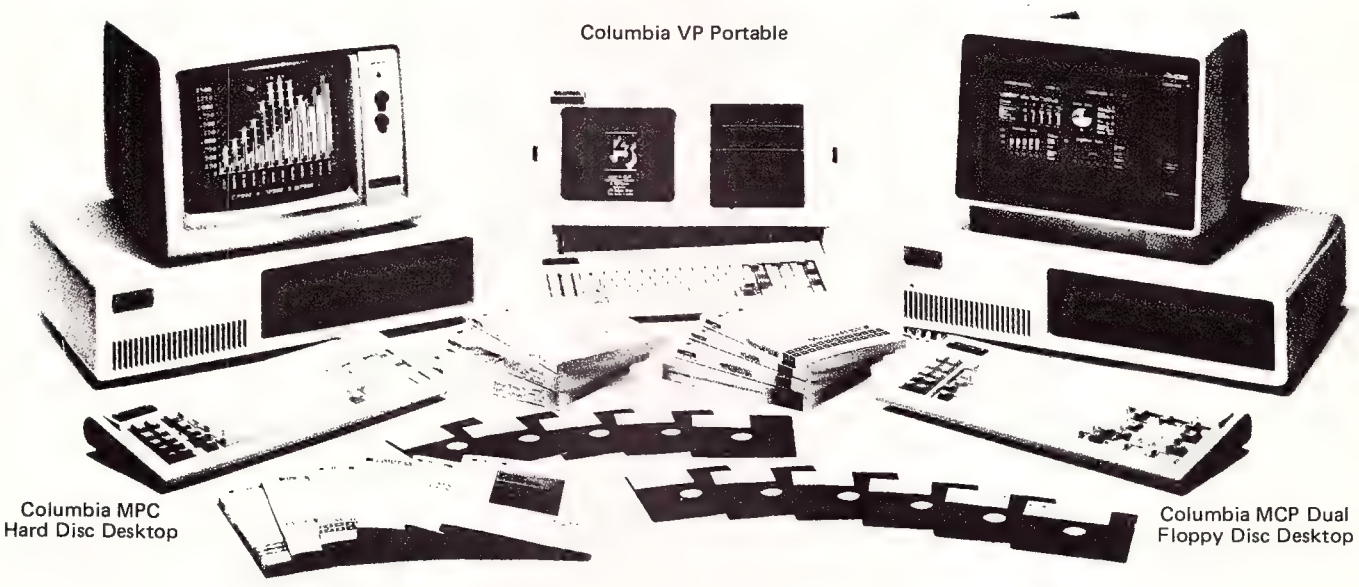


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# Coming of Age Together

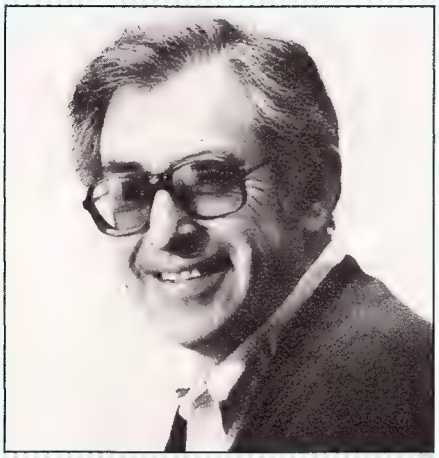
## Advances in microprocessors have always forced personal computer manufacturers to play catch-up. And the game is just starting to get interesting.

In just over 2 years, the IBM PC has become the de facto industry standard for the 16-bit single-user personal computer. Even Apple acknowledges its dominance and now plans to introduce an MS-DOS upgrade for its own Lisa system. But the situation can't last; 16-bit systems will not remain the industry standard forever. The pace of development in the microprocessor industry has been tremendous for the last decade, and all indications are that it will continue unabated. New microprocessors will force the development of new computers to take advantage of them. In fact, the development of the personal computer industry can largely be traced to improvements in microprocessors. To understand why that's so, and what it means to the future of personal computers, we first have to consider the past.

### Looking Back

The MITS Altair 8800 and IMSAI-8008 typified the first generation of personal computers. Introduced in 1975, they used front panels with switches and lights. Users manipulated the switches to load their programs. The first programs did nothing more than flash the lights on the front panel, à la Hollywood-movie computers. Early versions had 1K of memory. ROM was unheard of.

Soon memory size was increased to 4K or 8K. Programs were stored on paper or audio cassettes. The microprocessors of choice were the Intel 8080, Motorola 6800, and MOS Technology 6502. A typical system contained about 50,000 transistors and cost about $2,500. They were slow, difficult to use, and software was almost nonexistent. However, they were the training ground for the infant personal computer industry.



Sol Libes

The second generation, beginning in late 1978, included the Commodore PET, Apple, and TRS-80 computer systems. The overall capabilities of the systems were increased, making them easier to use. Memory size grew to 16K, 32K, and even 64K, while floppy disks allowed fast and easy access to 100K bytes or more of program and data storage. The total transistor count in a typical system rose to 300,000, with a typical system cost of about $3,000. Popular microprocessors included the Zilog Z80, MOS Technology 6502, Motorola 6809, and Intel 8085. All of these were still 8-bit microprocessors. Applications software such as word processors and spreadsheets appeared.

### Where We Stand

The third and current generation of personal computers are modular and highly integrated. Many have hard-disk storage allowing users to have immediate access to 10 megabytes of program and data storage. Displays have become more sophisticated, placing greater emphasis on better user interfaces via color and high resolution graphics. New I/O devices such as the mouse, light pen, touch screen, and voice I/O are common, making the systems even easier to use. Graphics-oriented menus provide a more humanlike interface. Memory size is now often 256K bytes. System costs have risen to about $3,500. Performance has risen dramatically through the use of 16-bit microprocessors and math coprocessors. The Intel 8088 and 8086 microprocessors dominate the market, although some manufacturers (such as Apple) have chosen the Motorola 68000. The typical number of transistors in a modern personal computer (the IBM PC, for example) is 3 million.

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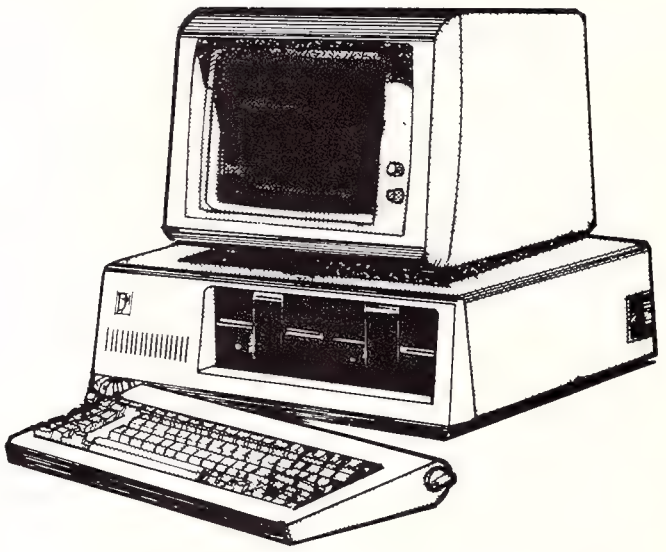

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## Looking Ahead

We can expect personal computer manufacturers to utilize new technology based on the new Very Large Scale Integration (VLSI) microchips. This will enable manufacturers to produce more intelligent software and I/O devices, reduce system costs, and make products easier to use.

Since VLSI chips take 2 to 4 years to design and it takes more than a year to design the systems that use them, we should be able to see into the future by examining the VLSI chips now in development.

Let's take a look at what new VLSI products Intel is introducing now and what it has in the works. In 1982, Intel began sampling the 80186 and 80286, followed by the 80188 in early 1983. Very soon, Intel is expected to start sampling very low power, battery operable, CMOS versions of the 8086 (80C86) and 8088 (80C88) microprocessors.

All of the VLSI micros are software compatible with the 8088 now used in the IBM PC. The 80286 offers five to ten times the performance of the 8088, plus hardware memory protection for multiprocessing and multi-user applications. The 80186 and 80188 integrate 20 third-generation components onto one chip, reducing the size, power consumption, and cost of a system. The 80C88 and 80C86 will make possible a truly portable, rather than transportable, version of the PC. The 80286 is already in production, and production quantities of the 80186 and 80188 should be available by the first quarter of 1984. Sampling of the CMOS chips should begin in the first quarter of 1984, and production later in the year. As yet, no one has introduced a personal computer using the 80286, but one is inevitable. We can expect to see more powerful PC-compatibles becoming available during 1984, with the true portables arriving in early 1985.

The first version of the IBM PC utilized 4K-bit RAM chips. These chips grew to 16K in the second generation and 64K in the current generation. Manufacturers are now sampling 256K RAM chips and the personal computers now under development will use them. As a result, applications programs are expected to grow in features, power, and size.

It is expected that future generations of personal computers will make greater use of coprocessors to provide faster processing and greater power. For example, the PC contains a socket for the 8087 math coprocessor that recently became available from Intel in production quantities. The 8087 works in parallel with the 8088 in the PC which significantly speeds up processing of floating-point arithmetic and transcendental mathematics. The 8087 was sampled in late 1981 and production quantities became available in mid-1983.

> The typical number of transistors in a modern personal computer is 3 million.

Coprocessors for text and graphics processing and local area networking are now being sampled. Coprocessors for several other areas (for instance, database management) are also expected. Intel has already started production of the 8089 I/O coprocessor. New versions, one operating at a faster speed and another that works with the 80286, are in development.

The introduction of text and graphics coprocessors are expected to improve word processing and graphics on both displays and printers. The use of coprocessors should make true multiprocessing microcomputers a reality. Multiprocessing will allow a local area networking communications program to run in the background, even as a word processing application runs in the foreground and a file is spooled to the printer.

The 8087 coprocessor currently operates at approximately 5Mhz, slowing down the microprocessors used with it. It is expected that a high-speed version of the 8087 will become available in late 1984, allowing systems such as the IBM PC to run at full speed.

It is also known that Intel is doing development work in speech recognition with the intent of being able to recognize hundreds and even thousands of words. This goal is certainly within the realm of possibility for the powerful systems using the 80286 and 80386 microprocessors.

Intel already offers 8-bit CP/M on a chip and the manufacturer is working with Microsoft to introduce MS-DOS on a chip. Discussions have been held with Digital Research regarding putting concurrent CP/M on a chip. These products are not expected to reach the sampling stage until later in 1984, or early in 1985.

Further, Intel is in the early stages of developing what they call "high integration products" that will contain over 400,000 transistors on a single chip. It is expected that this technology will be applied to high-volume products such as complete personal computers on a chip. There is no doubt that, eventually, the power of a PC will be available on a single chip.

This means that within just 2 to 3 years we will be carrying personal computers with the power of the PC and possibly the XT in our briefcases. Sitting on our desks will be small "workstations" with the power of a VAX, communicating with other systems in the network and communicating with other networks in a galaxy of interconnected networks. As long as microprocessors keep getting better, personal computers will too. ■

*Sol Libes is the editor of* Microsystems *magazine and the author of 15 books, including* Interfacing to S-100/IEEE-696 Microcomputers, Digital Logic Circuits, *and* Small Computer Systems Handbook. *He is also a professor of electronic technology at Union County College in New Jersey.*

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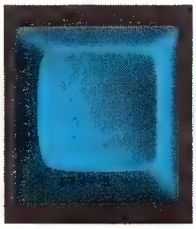

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# IBM Moves To Combat Clones and Others

IBM's 3270/PC, released in the US last year, is "ready to penetrate the office right away," according to the Yankee Group of researchers. It will have a major impact on personal computer vendors attempting to sell into large IBM accounts.

These include Apple and Tandy plus, to a lesser extent, Wang, DEC, Data General, Hewlett Packard and others.

The 3270/PC will be of most use, according to Yankee, to managers and professionals in IBM national accounts.

Its price starts at $US4,935.

It is, essentially, an IBM-PC with the added ability to act as a 3278 or 3279 terminal. As IBM introduced also 3278 and 3279 emulation for the PC and XT how, then, is the 3270/PC different?

The unique features of the 3270/PC are:

- It may run 4 3270 sessions, one Personal Computer application, and 2 "note-pads" for copying and saving screens from the 3270 and PC sessions concurrently;
- It features screen management that allows users to view all 7 sessions at once via a windowing capability similar in appearance to that of Apple's Lisa. Windows may be adjusted in location and size, and may be placed on top of or behind other windows. Significantly, information may be moved between a number of windows.

Because of its price and the wealth of software already available for the PC under PC-DOS, the 3270/PC, unlike the XT/370, is more immediately formidable than the XT/370.

However, there are some factors that will dictate just how successfully the 3270/PC will sell in the business/office environment:

- At $4,935, the PC/3270 is below, but still very close to, the threshold that most user corporations have consciously or unconsciously set for professional workstations;
- There is no question that there is a very large applications library for the IBM Personal Computer. However, the question arises: are there that many end-user-oriented 370 applications that a user would be able to make use of 4 3270 sessions?
- There is no doubt that IBM is attempting to beef up its variety of information center applications, including office automation and data base products, but right now there are really very few mainframe-based applications that end users can (or want to) use.

In addition to its own development of better information center software, IBM is once again depending heavily on third parties to develop end-user software for the 370 environment.

Users' immediate impression of the 3270/PC will be that it is an inexpensive answer to Apple's Lisa.

Of course, the 3270/PC does not have the elaborate (and simple to use) user interface offered on the Lisa, but one can see that the 3270/PC constitutes the base upon which third-party software vendors – and ultimately IBM – could build a product relatively easily that competes with Lisa more directly.

To some extent, the 3270/PC is a blow to the 3270-compatible vendors, such as Memorex, Telex, ITT Courier, Lee Data, and others. But most of these vendors already recognized that the 3270 market is splitting into a low (3178) end and an intelligent, high (3270/PC) end.

In fact, vendors like Telex and Lee Data had already introduced add-on PC capability for their 3270 lookalikes. With the 3270/PC, however, IBM has uncharacteristically leapt ahead of the PCMs by offering sophisticated screen management (windowing). Although the PCMs simply have some catching up to do, the 3270/PC product is the first official notice that PCMs now have expanded their scope to include not only the very competitive 3270-compatible market, but also the extremely competitive personal computer market.

The 3270/PC, Yankee claims, is bad news for the supermini vendors.

The immediate impact is not enormous, since the 3270/PC merely means that mini vendors will have fewer opportunities to sell their own personal computers. But the more IBM strengthens its hold on the workstation market, the more difficult it will be for mini vendors to sell their large processors in business/office environments down the road.

The IBM XT/370, claims Yankee, is the "most strategically important IBM released since the 1974 introduction of the first systems network architecture (SNA) products".

SNA products have allowed users of IBM-distributed systems – and increasingly other vendors' systems – to communicate more effectively with IBM mainframes.

Quite simply, the XT/370 is an IBM-PC-XT with 3 extra boards of software which allow it to run most of a 370 mainframe instruction set and a lookalike of the mainframe operating system, virtual machine system/system product (VM/SP).

It is being sold in the US as a new personal computer with a base price of $US8,995 and as an upgrade to the PC-XT for roughly $US3,800.

Why is an architecturally (and soft-

ware) compatible personal computer so important? There is currently a fierce battle being waged by IBM, the super-mini vendors, and others for the distributed processing market – particularly the business data processing and office automation segments.

The Yankee Group believes that each "work group" – a department or other such group of people bound together by similar applications – withing an organization will be supported by a departmental processor (minicomputer class) which will, in turn, network and support the personal workstation of professionals within the work group.

Personal workstations will connect to the mini (satellite processor) and other local workstations through a local network.

The personal workstation will run many applications such as spreadsheet, word processing, and a variety of work group-specific applications like financial packages (for the finance department), scientific and engineering packages (for the research and development departments), and so on.

The satellite processor will provide local data base facilities, run large applications, and provide a communication gateway and other work groups (local networks).

Yankee Group surveys have indicated that software compatibility between satellite (departmental) processors and personal workstations increasingly is becoming a major requirement for any vendor competing in the distributed processing market. Some users want to run some of the same applications on their PCs as they do on their satellite processor; this has spurred the demand for compatibility.

More importantly, however, software compatibility implies a vast simplification of communications between workstations and satellite processors, and their respective applications. File conversion and communications format and protocol conversion become less complex and, in many cases, unnecessary. In many cases, critical information system applications, such as data base management systems (DBMS), can be distributed, in compatible "pieces," between host systems, satellite processors, and personal workstations.

Not many office users will pay $9,000-plus for a workstation that runs an operating system (VM) for which there are not yet many end-user-oriented applications (relative to the number available for the PC's DOS operating system). However, the introduction of the XT/370 suggests that within one to two years:

1. The price of a 370-compatible personal computer will decrease to something affordable by professionals, managers, etc. – in the $5,000-$6,000 range;
2. The introduction of the XT/370 will have stimulated an enormous amount of third-party sortware development of the VM/PC operating system, providing VM users with applications that are more tailored to end-user environments than current VM applications.

That is, within one to two years, the price will be low enough and application variety will be wide enough for a 370-compatible PC to finally move from program developers' and scientist/engineers' desks to much wider use by managers and professionals in general business/office environments.

When that time arrives the PC family will stimulate purchase of 4300s and mini vendors will find themselves shut out of many work groups in large accounts.

In the meantime, the immediate impact of the XT/370 will primarily be in the program development and scientific/engineering environments. Obviously, IBM already has a lock on the development market in IBM shops. The scientific/engineering workstation market, however, represents new and fertile ground for IBM and the XT/370.

# Six New IBM Dealers

Six new dealers have been appointed for the IBM-PC by IBM Australia.

They are Computerland Perth, TNT Group 4 of Sydney, Management Technology of Hobart, Parity Computer in Canberra, Norman W. Evans of Toowoomba, Queensland, and Business and Leisure, of Wollongong.

IBM strategy appears to be not to appoint additional dealers in major cities, but rather to spread into larger regional centres and vertical markets regions.

Thus the TNT appointment in Sydney is based around a payroll software package this company has developed to run on the IBM-PC.

An offshoot division, TNT Payroll Management Systems, launched the package, called Paywell, early this year.

National manager Norm Hall claimed the system would provide financial executives and pay department staff with a powerful in-house payroll processing and reporting solution.

Hall said Paywell could handle deductions from pay such as the Medicare levy and adjust the pays to cover any changes in the working week, such as a reduction of hours to the 35 or 38-hour week.

It would produce documents, including group certificates, bank credit transfers and management reports.

"The Paywell system means that payrolls can now be prepared when it is convenient to the employer rather than when it is rigidly demanded by bureaus or EDP departments," Hall said.

Hall said a major feature of Paywell was that the payroll could be validated before it was run, thus eliminating third party errors.

Screen features included:

- Operator prompting – no need to refer to manuals.
- On-line validation – errors highlighted for immediate correction.
- On-line inquiries – information and input effect were always visible.

He added that security of information was maintained by the system by password controls.

Paywell is available on most microcomputers which support CP/M, MP/M, Turbodos and MD/DOS. Unix-based systems will be available later this year.

The minimum hardware configuration required to support Paywell is: 8 bit microcomputer, 64K memory, 5Mb hard disk, floppy disk drive, and printer.

# How To Train Executives

Properly trained PC users are going to distinguish successful from unsuccessful installations in the future.

If the desktop machines don't produce real value for first users within organisations, there's little hope of PCs spreading further. Now, one of the country's major hardware-software dealers and big-eight accountancy firms believes it has a solution to this worry.

ACI Computer Services and Deloitte Haskins + Sells are providing nationwide training for personal computer users. The ACI group has become one of the country's two biggest IBM-PC dealers, as part of its diversification from orthodox computer-bureau services.

Deloitte's, meanwhile, is carving a useful niche in the crowded consulting-services field by offering training and hand-holding to PC users – a service for which many dealers lack the time and resources. Deloitte's computer manager Vince Sweeney, incidentally, authored the firm's 200-page glossy called Businessman's Guide to Micro-Computers late last year, including detailed reviews of the hardware and software on the Australian market.

ACICS general manager Tony Klingender says the need for PC training courses became evident from satisfaction surveys of buyers. "A lot of them said they were finding it slow work to get to know their PC and extract new uses from it. They would buy it for a special purpose, like running Visi-calc, and two months later they hadn't added any more uses for it.

"I've been there myself. A whole weekend at home to master the art of composing simple documents on Ezy-Writer, and a whole day to learn simple functions on Visi-calc.

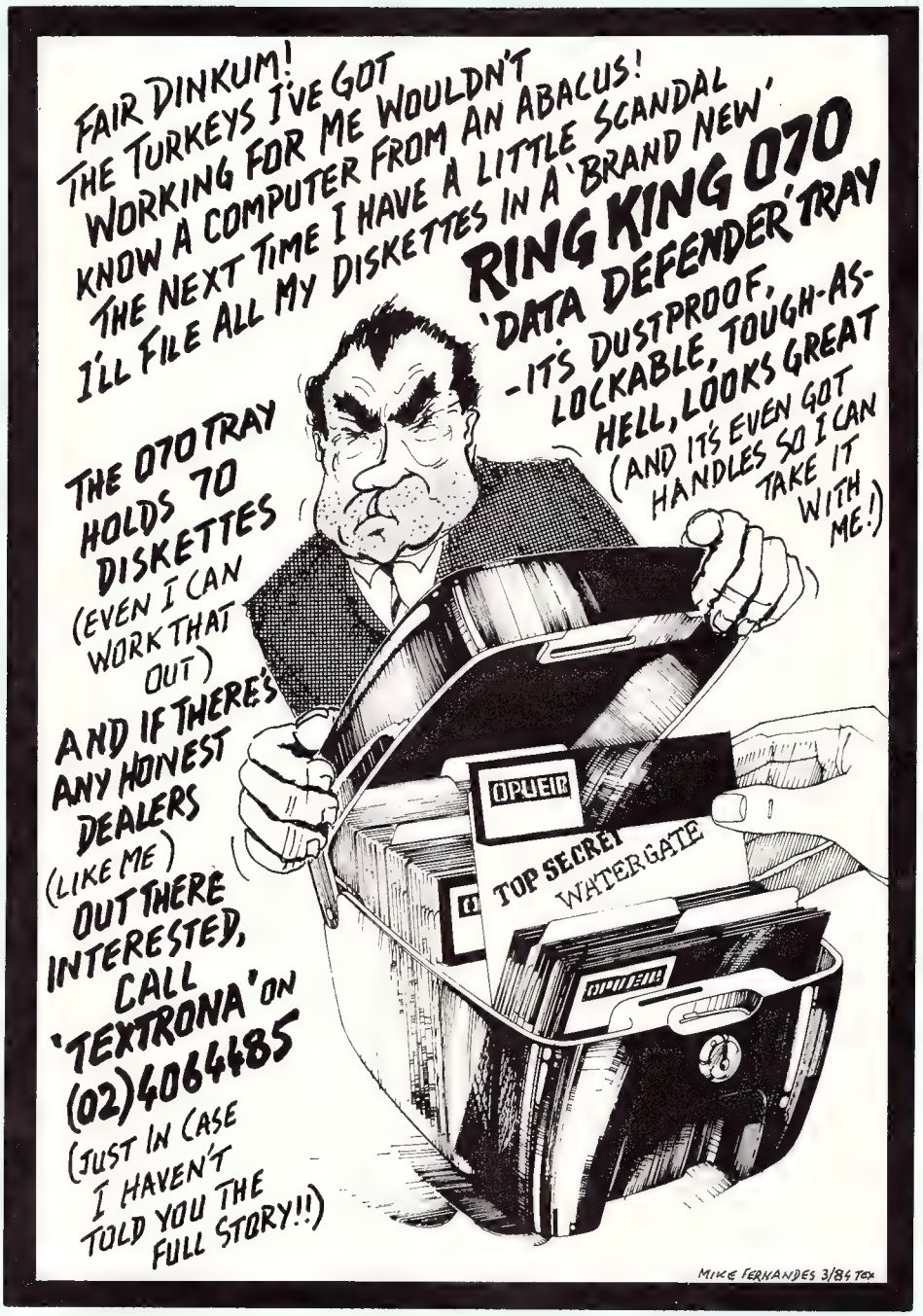
The training program has two facets – free seminars at which ACICS describes and markets new products and the training programs with no overt sales message and involving a fee of $120-$150 a head a day, about the standard industry rate.

Training sessions will have a maximum of 12 trainees a batch, operating six IBM-PCs. The presenters will be professionals from Deloitte's, giving hands-on training on popular software like spreadsheets, Lotus 1-2-3, word processing for secretaries or executives, and more advanced two-day courses on dBase II for PCs.

Learners will range from home users to general managers, and courses will probably be split into business and amateur grades.

The first module of courses kicked off in Melbourne in April, moving to Sydney in May and Canberra in June, averaging 10 course days a month. Brisbane, Adelaide and Perth will be phased into the second half of the year.

Klingender: "A lot of our PC business this year is going to be repeat sales to people building up systems. Last year was the year we were all competing out there to get preferred-supplier agreements with the big corporations – we


FAIR DINKUM! THE TURKEYS I'VE GOT WORKING FOR ME WOULDN'T KNOW A COMPUTER FROM AN ABACUS! THE NEXT TIME I HAVE A LITTLE SCANDAL I'LL FILE ALL MY DISKETTES IN A 'BRAND NEW' RING KING 070 'DATA DEFENDER' TRAY -IT'S DUSTPROOF, LOCKABLE, TOUGH-AS-HELL, LOOKS GREAT (AND IT'S EVEN GOT HANDLES SO I CAN TAKE IT WITH ME!) THE 070 TRAY HOLDS 70 DISKETTES (EVEN I CAN WORK THAT OUT) AND IF THERE'S ANY HONEST DEALERS (LIKE ME) OUT THERE INTERESTED, CALL 'TEXTRONA' ON (02)4064485 (JUST IN CASE I HAVEN'T TOLD YOU THE FULL STORY!!) OPUEIR TOP SECRET WATERGATE MIKE FERNANDES 3/84 TOX

sold to CRA, Comalco, Dunlop and Coopers and Lybrand, for example. Initial sales were a dozen or a few dozen IBM-PCs but the big fellows are candidates for maybe 500 units each.

"Whether they place orders will depend on how well the first users are getting along with their desk top PC. If they stall and cease to get value from it, their colleagues are going to laugh. But if they succeed, the fellows working all round are going to want one too. So we want those first guys to really show what can be done."

Neil Hodges is ACICS national training manager.

Hodges has 12 years' DP management experience with ACI, but the past couple of months has been his first sortie into managing an education project. He is also having to adjust to PCs from IBM 3081 mainframes used for bureau services in on-line payroll, engineering and accounting. But he finds the new project – micro or not – involves a similar need for organization and co-ordination.

Hodges says plenty of competitors are running courses but the quality is variable. There are also lots of self-teaching packages but all too often the student gets stuck or frustrated and has no-one to help him out.

"At a certain point, the user-friendliness of a software package runs out. To get more sophisticated usage from it, you either need a lot of talent or an experienced person to lead you through it."

Hodges expects quite a few trainees to "try-before-they-buy" making sure for $120 worth of coaching that software is up to their expectations before they invest $10,000 in a business PC system.

Another market is the PC buyer who is curious and excited about his machine's potential – the sort of person who has been ringing ACICS sales people for help.

ACICS' Klingender says ad hoc training offered last year demonstrated the demand for courses.

"We offered a one-day training course to help people with Lotus 1-2-3 before Christmas – and got 18 starters just by word of mouth in a day or two. When we offered a training course on statistics with a product called Statpak, we got not just 21 acceptances but 23 people turning up."

Other experience has come from ACICS man Ian McCallum's 3-year-stint with Ausinet's on-line information retrieval service, which grew from 30 to more than 250 members and has involved the training of hundreds of users.

# Every Note Is Right

Like most of the clients it represents, Sydney's Oz Management is hitting the high notes. And much of the entertainment agency's recent success is due to a unique suite of software programs which partner Peter Ellison developed for an IBM-PC.

The system has revolutionised tedious old manual filing methods, freeing Peter and co-partner Chris Kennedy for more entrepreneurial – and profitable – endeavours.

Oz Management represents about 20 artists, from comedy club performers to raunchy rock 'n' rollers.

Clients such as The Drifters, Jon English, Marcia Hines, Doug Parkinson, Daryl Braithwaite, John Paul Young and Stevie Wright mean more than just music to the ears of Chris and Peter – they bring in through booking commissions the bulk of the agency's income.

The seeds of Oz Management were germinated – somewhat noisily perhaps – about 21 years ago when Chris and Peter's mutual love of music brought them together in a function band called Oz.

Oz Management was not formed, however, until 1976 when the pair were squeezed – economically speaking – from the property development field.

"We decided to extend what we were doing for our band and apply it to other acts," explained Peter.

Oz Management obviously hit the right chord in a business sense. From a one-room "office" at Chris' Lindfield home the company has blossomed into one of Australia's top five booking agencies.

So rapid has been the growth that it became obvious in the early part of this year that the office system needed to be fully computerised.

The company purchased from City Personal Computers an IBM-PC with a 10Mb fixed drive and an IBM matrix printer. It also purchased IBM's Easywriter word processing package – the agency's only piece of off-the-shelf software.

The main master file package was developed using Peter's knowledge of computer programming gained in the mid 1960s and early 1970s.

Now, all the company's bookings are entered into the system on a daily basis. The PC then takes over, automatically confirming the bookings, originating the contracts, generating detailed worksheets and itineraries, and producing a check list of publicity requirements.

For certain acts it may be necessary to produce posters, photos, biographies, advertisements and arrange interviews or video clips, so this is where the check list is used and updated on a day-to-day basis.

"If a press release is needed we generate it on the word processor and use our computerised mailing master file," Chris said.

"The system also invoices automatically, as well as monitoring the status of contracts."

This latter function, Peter emphasised, can mean the difference between a profitable tour and a disaster.

"One of the bugbears in this business is that some club managers like to sit on contracts and see how ticket sales are going before committing themselves," he said.

"We have helped to overcome this problem by initiating a comprehensive computer checking system.

"A form letter is sent out with every contract asking the manager to sign and return it as soon as possible.

"If this doesn't happen within two weeks the computer identifies those outstanding contracts and automatically generates a second form letter.

"If we still haven't received a response in seven days the system gives us a further reminder. This time we make contact with the manager by telephone, and if nothing positive happens within a fortnight of that then the contract is automatically cancelled.

# Support Emphasised

Training and after-sales support are services users should examine closely before buying a personal computer. Since dealers control a major slice of the PC market, their views on these subjects are important.

**Stuart Morrison,** head of Computerland Perth and one of six new PC dealers recently announced by IBM Australia, has some strong views:

"Suppliers who condone dealers discounting at the expense of post-sales support will not be around in the long-term," he says.

Morrison, who opened his store at the SGIO Atrium Building in St Georges Terrace as this issue of Today's Computers went to press, adds:

"The biggest problem that these suppliers will leave behind will be unhappy customers who distrust the computer industry."

# Context Fills A Gap

**Context MBA**, a key integrated software package in the $900 range, is now out from **NEC Australia**, filling a key gap in its program line for local serious users.

Details of the package were released exclusively to Today's Computers as the magazine went to press.

The new package works on mono and colour NEC APC equipment. NEC claims an installed base of 2,500 APCS in Australia and is looking to additional sales of 1,500 this year.

Context MBA, developed specially by a US software house, is aimed at professional and knowledge-type workers. It incorporates six key functions – modelling, graphs, database, forms, telecommunicating and word processing. Its purported major advantage is ease of use combined with multiplicity of applications.

Independent analyst Seybold says of Context MBA: "Context get high marks for accomplishing the level of integration present in the MBA program. Information from all its functions can be combined in a single document."

Seybold praises the graphs, database and communications functions, says the spreadsheet function is "adequate" and criticises the word processing application. Context MBA, it says, is for the serious rather than casual user."

# Bits And Pieces

Lotus 1-2-3 integrated software is now available on the Z100 Zenith microcomputer, distributed in Australia by **Warburton Franki,** a division of ANI Corporation. **Roger Stockford,** manager, marketing services, Warburton Franki, says the combination of the Z100 and LOTUS 1-2-3 "offers the professional the opportunity to easily and quickly graphically illustrate facts using a logical method of operation." □

Computer giant, **Sperry** is close to releasing its Sperry PC, a 16-bit personal computer the company claims can "run all IBM-PC third-party software," in Australia. Sperry's PC software support executive, **Bart Simpson,** says the Sperry PC will cost "10 per cent less than the IBM-PC" and offer "superior graphics and faster processing speeds." A 16-bit option and a 10 megabyte internal disk model have been announced for the Executive 816 briefcase computer from **Amust Computer Corporation** of Melbourne. Designer **Ron Harris** claims the new disk makes the Executive 816 "the most portable microcomputer" with a 10 megabyte system □

**Barson Computers** claims it has taken orders for "just under $2 million" worth of 1500 Sirius, BBC and Sinclair computers for the month of February this year. **Julian Barson,** managing director, is budgeting for a $20 million turnover to June 30, 1984, up from $12 million the previous year. □

Magnum, an Australian-made portable personal computer, selling for $2,495, has received an order for 200 units from its new South-East Asian and Omega watch distributor, **Omtis Ltd** of Hong Kong. **Terry Cruse** of Magnum Sydney operation **Dulmont,** says new Australian distributors would be announced in the immediate future. □

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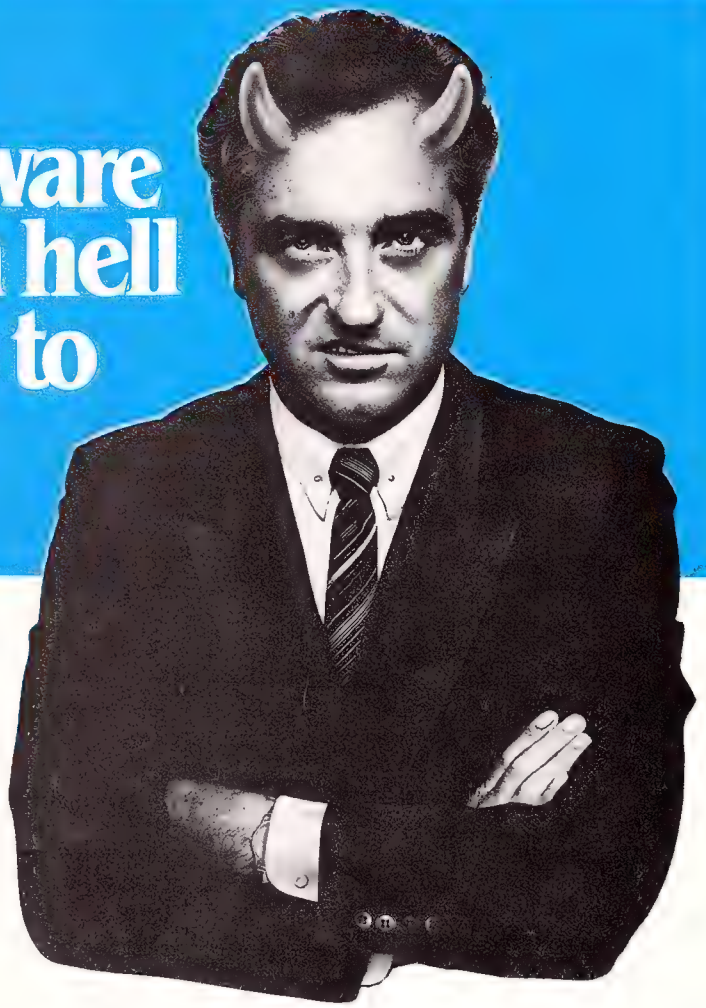

At Sourceware, we believe that just any software isn't necessarily good software.

So before we add a new IBM PC software product to our range, it has to meet the fiendishly high standards of our selection committee. *(The Chairman is pictured above).*

And, literally, they give it hell.

For a start, it has to come from a supplier with a proven record for quality and performance. Like AST Research Inc.,® whose range of IBM PC add-on memory products were recently placed No. 1 in a PC World magazine user poll.

Of the thousands of suppliers around the world, AST is one of only 27 who have so far met our standards.

Next, although our selection committee is anything but friendly, our software products have to be.

Like LOTUS 1-2-3,® which for the past 12 months has consistently rated No. 1 in the US Softalk' magazine's monthly rating of the best IBM PC Software.

This powerful program combines spreadsheet, information management and graphics, yet because it instructs you right on your computer's screen in a friendly, helpful way, you can use it even if you've never been near a computer before.

So far, just 40 products have survived a roasting from our committee.

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# PCs Begin At 40?

*Can you live without a computer...? Are you too late if you are over 40...? What would a computer system actually save you...?*

Potential users will identify with these questions posed in computer courses run by Sydney group **Micro Studies P/L.**

Tragically, too many business people rush into the wrong computer with staggering costly (and embarrassing) consequences, says Micro Studies. All too often the user ends up with a computer system costing far more than he or she envisaged in terms of software and equipment. Worse yet, the system may have many features not really needed, but critical features missing.

Course director Andrew Szmid told Today's Computers: "I am revolted at the misinformation and confusion surrounding computers for small businesses. I have quit my career as a full-time government lecturer because I realize that short, concentrated education *on a residential basis* is the key to this problem.

"You got your driver's licence before you went out and bought your first car. In the same way, a modest investment in a getting to know computers course should come before major investment in a computer system."

# Desk Top Jobs And Source Book

Two additional desktop 16 bit personal computers are due to arrive in Australia. One will come from **Fox Computers** and be called the 2001. The other will come from **John Kouvelis** at **Sharp Corporation's** computer and systems division, to augment Sharp's PC5000 portable.

The new Sharp unit will be called the MZ5500 and sell in the $4,000 range.

**Tandy Australia** is out with its TRS-80 Agricultural and Horticultural Software Sourcebook. The book costs $8.95 via Tandy's network of 350 stores, computer centres and dealers. **Lyall Jones**, Tandy's agricultural marketeer, says book sections cover financial management, livestock, cropping and irrigation. Some 63 programs are covered.

# Hand-held Text Input

Text-input by non-typists is the major feature of a large handheld calculator-sized product called Microwriter, out from **PHM Australia** of Manly, NSW.

PHM claims it has the first handheld, full-function word processor with its system. The fingers and thumb of one hand can handle some six keys, the thumb controlling two. The keys control letters, numbers, punctuation and commands.

# Seminars, Hands-on Courses

Sydney-based computer education firm Management Technology Education Pty Ltd has put 940 people through its seminars and hands-on courses in the half-year to December, including 400 people in Melbourne.

The company is run by Zika Milenkovic, whose background is economics/finance and is a computer user, and Chris Carvan, from the operational research and DP management field.

The courses have been running for 30 months. Milenkovic says the company's independence from any supplier or consultancy service is a marketing plus. "All we do is education," he says.

# Nashua & Software Duplication

**Nashua Australia** plans to establish a series of computer diskette transfer and copy service centres throughout Australia, New Zealand and the South Pacific as a result of an exclusive agreement with **Blue Sky Industries Pty Ltd**, a Sydney-based computer manufacturer.

The service centres will use equipment supplied by Blue Sky and will provide software copying and data transfer services for bona fide owners and licensees of software.

**Tony Little**, manager of Nashua's computer products division, says that the service will fullfil a need within the computer industry for a professional software duplication and transfer service.

Nashua, he said, was taking measures within the service centres to ensure security and confidentiality of software and data.

A key feature of the service would be local software support. More than 60 formats were available for computers using C/PM MS/DOS, PC/DOS, UNIX AND DEC RT11 operating systems, and new formats could be developed. All formats and transfer programs had been developed by Blue Sky and a comprehensive plan for the system was being developed, including the development of all 3½ inch diskette formats for inclusion with existing 5¼ inch and 8 inch formats.

# A Racey Venue

Practice Computing – 1984 Style is the theme of the RACGP Fourth Computer Conference May 8-11 at the Moonee Valley Racecourse, Melbourne. The conference is aimed at educating and updating doctors on all possible applications of computers.

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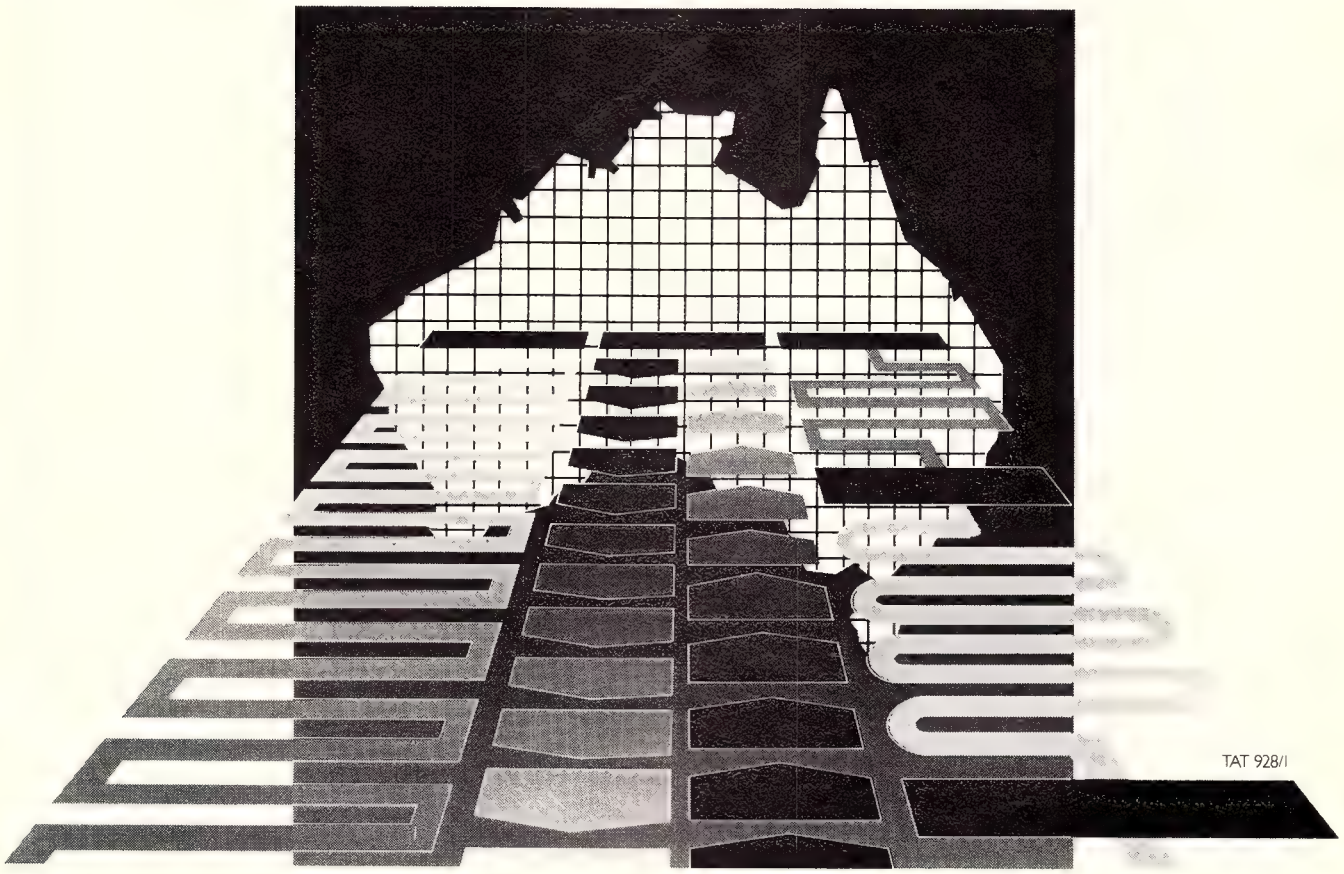

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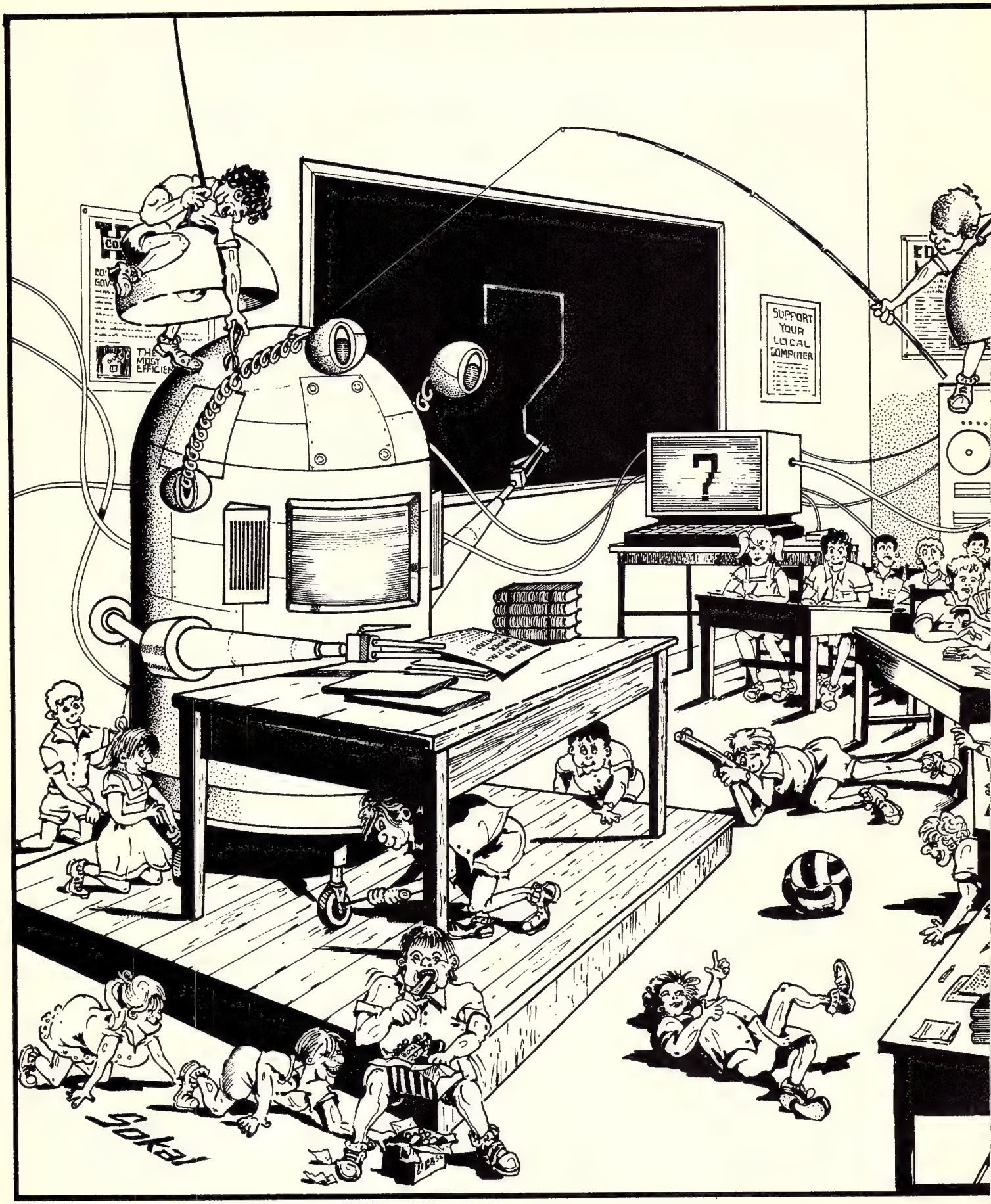
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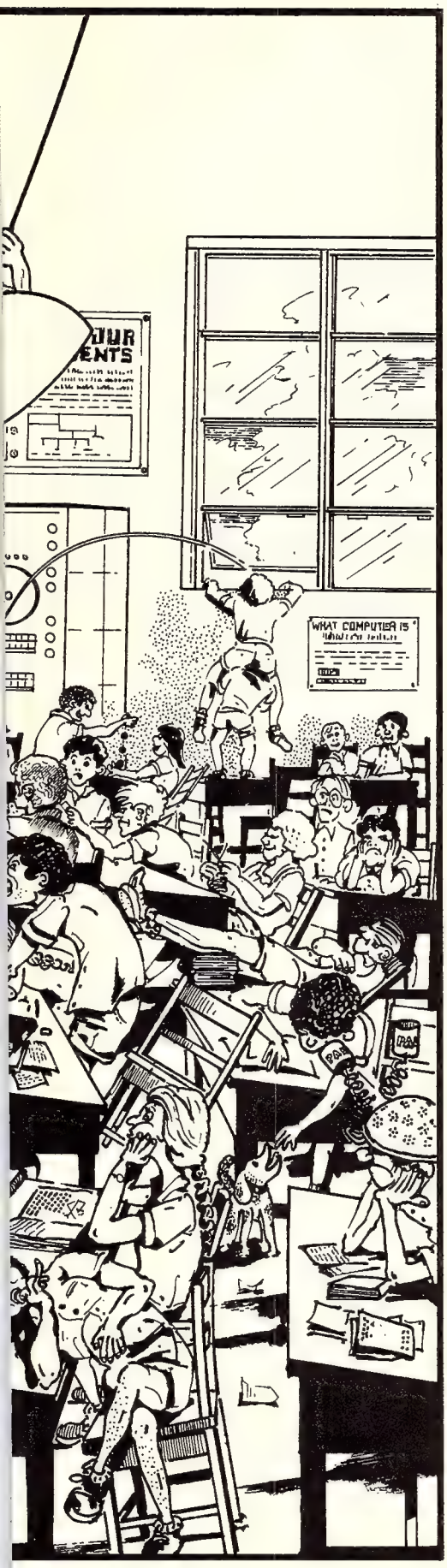


EDUCATION/DAVID SHIRES

Confusion, rivalry and more is making for computer illiteracy.

# Broad Gauge, Narrow, Thinking Bedevils Govt Policy

Setting national standards for anything in Australia – a country still plagued by differing railway gauges, the result of an earlier decision by the States to go their own ways – can be a horrendous task. Add to that conflict and confusion within the education bureaucracies of the larger states and you can begin to understand why your kids may not yet have been introduced to computers at school – and why the next crop of computer whizz kids will probably come from Tasmania.

Everybody agrees that children need to learn to use computers, but in Australia the agreement stops there. What computers they should learn on and what the computers should teach them are still matters the States are prepared to fight about, despite efforts at a Federal level to achieve some agreement on standards.

And so computer illiteracy amongst today's school-leavers remains a problem – for them and for potential employers. Not that enough money isn't being thrown at the problem – it is.

With an $18 million computer budget over the next three years, $6.3 million of it budgeted for this year, the various State and territory education authorities have plenty of money to spend on computer facilities in both primary and high schools.

Mr R. P. McNamara, executive secretary to the National Advisory Committee on Computers in Schools (NACCS) and a first assistant commissioner of the Commonwealth Schools Commission, says: "If you split up the funds in terms of numbers of children in secondary schools, for government schools you get a flagfall of $150,000 minimum for every school, and then we distribute the rest per capita."

He said that non-government schools would each receive at least $50,000.

But how that money should be spent is what starts the fights. Many education experts have been left bewildered by the incredible rate of progress now being achieved in computer technology. Like potential business users education authorities worry that what they buy today

*David Shires is a reporter with The Australian Financial Review.*

may be obsolescent tomorrow, or even this afternoon.

This rapid rate of progress appears to have left the Federal Government in a quandary as to the method by which hardware should be prescribed for use in schools; in fact, whether it should be prescribed at a Federal level at all.

The debate pivots on recommendation 40 of a NACCS report to the Schools Commission: that in the short term the BBC Acorn (with or without Z-80 and CP/M support), the Microbee 64, and the Apple II/IIE should be supported for the provision of maintenance and the development of software and courseware.

Two members of the committee dissented from the recommendation.

The NSW Department of Education's Director of Studies, Dr F. G. Sharpe, dissented largely on the grounds that NSW did not view national standardisation of equipment as being necessarily conducive to achieving positive results and that the State saw the selection of equipment in government schools as the exclusive responsibility of the States and territories.

Mr Paul Jeremy, an IBM systems engineer representing the Australian Council of State School Organisations, was stronger in his dissent.

He saw the recommendation to be based on three primary aims: the need to halt the growing proliferation of computer types in schools, the need for a degree of standardisation, and the possibility of negotiating favourable prices on the basis of a national market.

"It addresses the first two of these in a very simplistic way, without addressing the fundamental issues. If anything, it militates against the third," he said.

Both the Commonwealth Schools Commission and the Commonwealth Government seemed to agree with the dissenters among the committee, at least so far as to reject recommendation 40 and leave hardware purchase in the hands of the States.

The Schools Commission recommended that hardware be purchased according to the guidelines set within the appropriate education department's "approved lists", a recommendation accepted by the Government.

That may have gone some way towards solving Dr Sharpe's problems, but it did not approach all of the problems raised by Mr Jeremy, although it did at least confine them within State boundaries.

***"WE HAVE 170,000 teachers, and very few are really computer competent, no more than 3 or 4 per cent."***

Mr Jeremy contended that computer technology was progressing so rapidly that by the time the appropriate recommendations had run the gauntlet of bureaucracy and been set in place, the equipment cited on those lists was in danger of proving redundant as new equipment with greater capacity at lower cost entered the market place.

"It is not inconceivable that a computer could become available next week which is functionally superior to those recommended, but which costs considerably less. To state that the list will be reviewed regularly is not an adequate response to this situation; the review would need to be continuous," he said.

Mr Jeremy suggested that the establishment of a "standard courseware environment" would prove a more suitable control over hardware purchases.

"It is envisaged that the standard courseware environment would be continually evolving to accommodate and anticipate technological advancements," he said.

Such a system, which Mr Jeremy said would probably be based on a "superset" standard with room for "subset" manoeuvre, might include ample warning that changes to the standard environment were to be made, giving schools time to modify or expand their existing programs to meet the improved standards.

Mr McNamara agreed with him, but not for the present. "In the long term we want to set a national standard of education computerisation specifications," he said.

Mr Barry Smith, who established the Computer Education Unit in NSW, agreed with Mr Jeremy's concept on a national basis, but saw a definite need to maintain the contract list system in NSW.

"I don't think there's a fundamental conflict between what Paul Jeremy is saying and the list the NSW department is preparing," he said.

NSW currently has five brands on its list under a two-year contract agreement, and Mr Smith said that to allow that list to expand at the whim of each school in the State would create problems related to the level of service support and software advice the department could provide.

"If the contract was confined to one brand the situation might be different," he said.

"Only one brand on the recommended list was too few, and could cause a variety of problems," Mr Smith said.

Beyond the hardware debate, the Commonwealth has decided that spending priority should be given to teacher training rather than hardware purchases in the short term.

'We have 170,000 teachers, and very few are really computer competent, probably no more than 3 to 4 per cent," Mr McNamara said.

The hardware problem is further exacerbated by the fact that the States and territories are at different stages in the development of computer-based curricula, making the definition of a national standard courseware environment all the more difficult.

Arguably the computer education showpiece in Australia, Tasmanian school computers are the responsibility of the Education Department's schools computing centre, the Elizabeth Computing Centre.

The Centre maintains an extensive network of minicomputers, known as TASNET, which supports 330 terminals in schools and colleges throughout the State. It also gives advice to schools and develops software for both educational and administrative use.

All schools in the State have access to interactive computing equipment through TASNET, microcomputers, or both, and Higher School Certificate level computer studies have been available to students for 11 years.

All high schools in the Northern Territory have at least one microcomputer. Some have complete computer rooms while one is fully networked, according to the NACCS report.

In South Australia about 95 per cent of high schools and 20 per cent of primary schools have at least one microcomputer, while 30 schools have established local area networks linking an average of 11 microcomputers per network.

The cost of achieving a similar status in the more populous eastern States has proved somewhat prohibitive; nonetheless they are on the way towards achieving a similar level of integration.

Late last year NSW boasted approximately 2,200 microcomputers in its high schools and primary schools, but as the NACCS pointed out, progress has been hampered by the high student-to-computer ratio.

In Queensland the number of computers in high schools, primary schools, and special schools rose from 310 in 160 schools in February, 1981 to 1,550 computers in 420 schools in February, 1983, indicating the growing importance of both computer education and computers in education.

The States and territories are also approaching the bureaucratic demands of computer integration in quite different ways, another problem to be faced in the establishment of a national standard.

Some of the larger States have created a myriad of committees and advisory panels to tackle the challenge while the smaller education authorities have been able to establish quite simple structures to cope with the transition.

In NSW computer education is the responsibility of the Secondary Schools Board Advisory Group on Computer Education, a curriculum project team established by the Department of Education, and a Computer Education Unit, while computer training for teachers has become the realm of the Directorate of Studies and the State Development Committee. The Computer Education Group of NSW also plays its part in the process.

In the Northern Territory computer education is the responsibility of the Mathematics and Computer Education Unit in the Curriculum Section of the Professional Services Branch, an apparently simple structure, but, judging by the Territory's stage of computer education development, effective.

The Schools Commission's answer to inter-State bureaucratic incompatibility is to establish committees in each State appointed by the State education ministers in consultation with the Commonwealth.

"They'll have representation from the education departments, teachers, computer education groups, parents, and they will have one government officer with experience in equal opportunity," Mr McNamara said.

The place of the computer in school curricula is another obstacle to be overcome on a national basis.

While the development and establishment of computer studies and computer awareness courses is underway in all States, the constant growth in the amount of education software available


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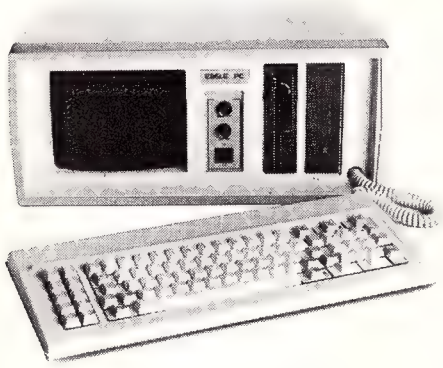

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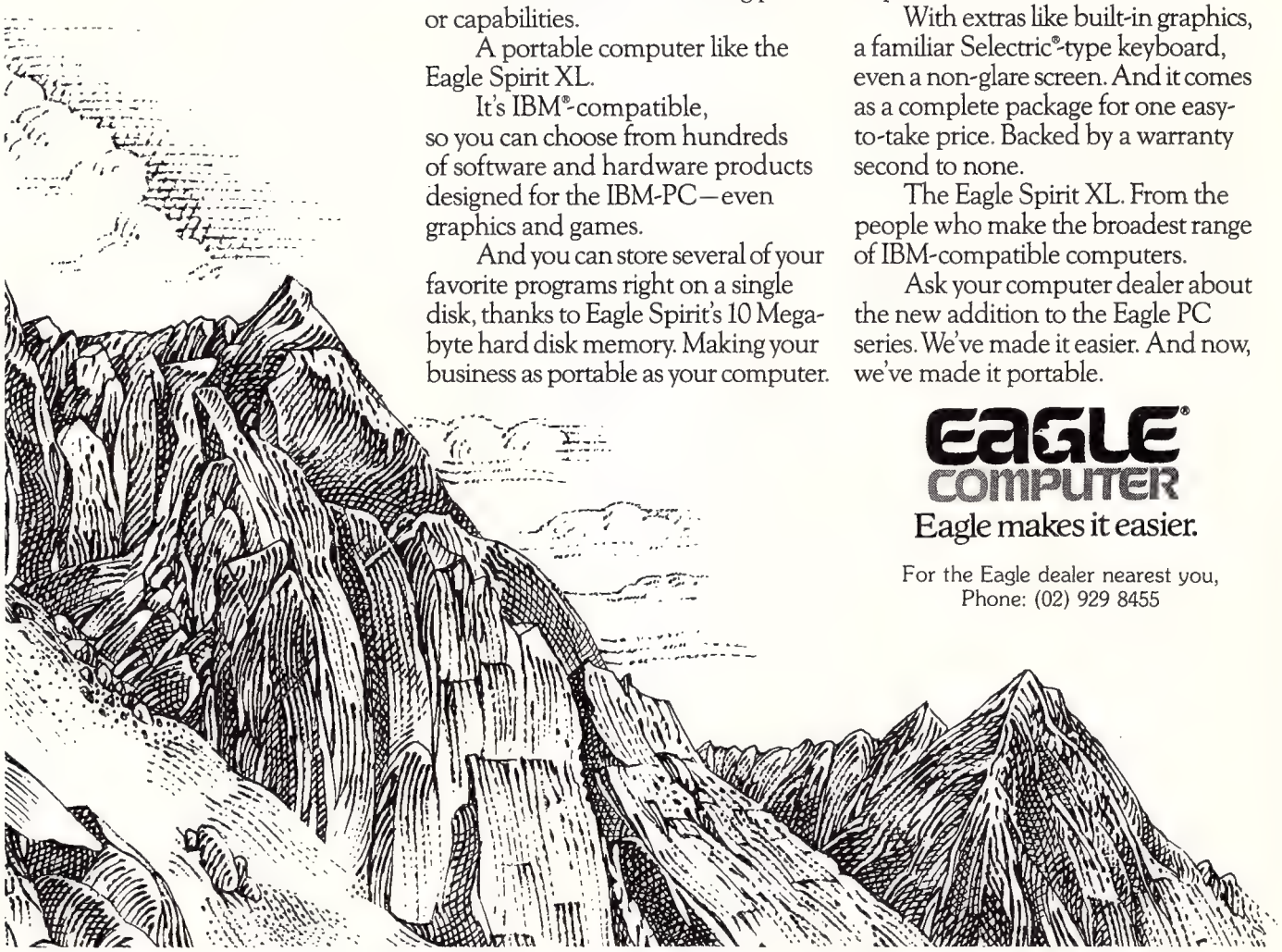

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makes the integration of computers into courses such as English and history another area education authorities cannot afford to ignore.

Recommendation 6 of the NACCS report, that special consideration in funding be given to the development of courses for girls, isolated students, aboriginal students, ethnic minorities, economically disadvantaged students and disabled students, also paves the way for the use of computers in development of basic English literacy and maths literacy courses.

Already in South Australia a special purpose microcomputer has been developed by the Special Education Section of the Education Department to be used by severely handicapped children, and in Queensland too a pilot program based in selected schools has been developed by the Special Education Computer Assisted Learning Committee of the Division of Special Education.

"There's no doubt of the benefit of computers in the education of handicapped children," Mr McNamara said.

Aboriginal education is also likely to receive a computer-based boost. Research is currently underway regarding possible applications in NSW under the auspices of that State's Aboriginal Education Unit, which will report its findings shortly, and in South Australia by the Aboriginal Task Force at the South Australian Institute of Technology.

The creation of a national mechanism for advising on curriculum development and providing an overview in all of these areas seems likely to become the role of the Curriculum Development Centre (CDC) under the Commonwealth Department of Education and Youth Affairs; at least that was the recommendation of NACCS.

But the CDC has yet to respond to the report, and would not until it had consulted with the various State and territory curriculum bodies – a priority over the next four weeks, according to Mr Paul Fennell, co-ordinator of the CDC's Computer Education Program.

He said that it was difficult to say what directions curriculum development would take over the next few years because of the rapidly expanding range of possibilities, but he was sure that computers would be making a growing mark on Australia's education systems.

"I would suspect that this is the year everyone goes crazy on computers," he said.

EDUCATION/ANDREW SZMID & KEN McGREGOR

# TAFE Moves (Slowly) Into Computers

In NSW, tertiary technical education is poised to move into 16-work-station laboratory stations within 19 key regional and metropolitan colleges.

A tender worth about $2 million is imminent for Technical Advanced Further Education (TAFE) colleges in NSW.

The currently minicomputer-based TAFE network out of Sydney will be augmented by distributed microcomputers and/or personal computers.

A five-person group will oversee the tender, with a decision due by mid-year.

Early this year, specifications were drawn up around the average college class of a one to 12 or one to 15 teacher to student ratio. Hence the need for 16 computer work stations, plus one or two monitors and two printers per site.

Under review also are ranges of software packages in areas such as farm management, word processing, business studies, accounting and spreadsheet applications.

Tertiary education's move into the new installations follows TAFE's foray in the late 1970s into a Digital Equipment VAX network for eight major colleges covering some 40 per cent of relevant students in the State.

Meanwhile within and outside TAFE a debate continues to rage about that institution's educational priorities. TAFE's often-stated policy is that it is there primarily to service the needs of industry.

*Andrew Szmid is the principal lecturer of Sydney-based consultancy, Micro Studies.*

This obviously made sense during the long post-war boom, but began to be questioned as industry not only stopped hiring in the traditional trades, but started discharging apprentices as soon as they had finished their time.

Unemployed school-leavers have been told that their only hope lies in growth technologies such as computers. They want to learn about them. Should TAFE cater for their needs, or should it stick to training tradesmen whom BHP just might want when the next boom comes?

The debate can be illustrated with some startling figures. The School of Business and Administrative Studies at Sydney Technical College runs an introductory course called Data Processing Concepts. This year there were 2,150 applicants for the 80 to 150 places available in the course. Obviously, a lot of people are being denied the opportunity to acquire the skills they feel they desperately need.

The outcome of this debate is of considerable interest to the computer industry because currently there appear to be only two prospects for expansion of tertiary education in this area:

- Formal certificate education leading to new careers, or enhancing current ones, offered by TAFE colleges.
- Practical courses, either "crash" or long-term, offered to businessmen, managers and executives, blending the knowledge of computerized information systems with a comprehensive approach towards key features of accounting and management packages,

offered by independent private education organizations.

But let us return to TAFE's present situation and prospects:

The great majority of courses in TAFE colleges are of a vocational character. However, increasingly, more courses have been introduced in recent years in the general education fields. These courses (presently over 3,000), are offered in 97 colleges and 210 Associated Centres throughout NSW.

The mid-1970s widnessed the first major move towards computerization of TAFE's Colleges, resulting in the installation of a Digital PDP 11/70 computer system at Sydney Technical College. This mini-frame computer supported almost 60 terminals.

In 1978, management consultants Cooley Douglass Associates surveyed the computer requirements of TAFE courses in business & administrative studies, electrical engineering, information processing, general studies, secretarial studies and others. This resulted in implementation of the current distributed processing network in 8 large technical colleges.

At present this network configuration comprises two Digital systems. They are a VAX 11/780 computer located in Sydney Technical College, servicing three VAX 780s located in North Sydney, Meadowbank, Bankstown, St George and Wollongong Technical Colleges. Granville is yet to come on line. The network serves almost 300 terminals.

Reflecting enrolment for courses requiring access to computing facilities, the further 19 colleges have been selected for the installation of computers.

It is expected that the most immediate requirements for new computers at these smaller colleges would show in the Schools of:

- Business & Administrative Studies (BAS)
- Secretarial Studies
- General Studies
- Rural Studies.

(Note: A TAFE School is comparable with a University faculty.)

The primary function of the new computer facilities will be to provide students with experience in industrially relevant applications software. Students wishing to enter the information systems industry will get training in the programming of computer systems.

Based on previous enrolments it is estimated that over 35% of students enrolled in BAS courses at these colleges will study for accountancy certificates, falling into the first category – those seeking practical knowledge of software applications packages.

Over 10% of students might choose to enrol for courses directly related to information-processing industry, and a high percentage of the 8000 students estimated to enrol in secretarial studies also will require the computer facilities for training in word processing.

Another major role for the equipment will be to conduct computer awareness courses for a wide cross-section of the community.

In software, TAFE colleges are expected to follow closely the requirements of the typical business enterprise, with a majority of students gaining experience in spreadsheets, word-processing packages and RDBMS (Relational Data Base Management System) packages.

Other applications identified for these schools may include: accounting, cash book, filing & retrieval, statistics, graphics and programming languages. Additional software, in the form of suitably designed packages, may be acquired progressively as the courses are developed.

College staff are also hoping for a library software package to monitor and record student usage of computers, files and discs.

It is anticipated that the relational database management system package will enable TAFE to develop record management software for specific applications (such as farm and nursery management), simplified accounting and inventory control, where proprietary packages are either unavailable or unsuitable for an educational environment.

It will also enable:

- Students in information processing to develop skills associated with the storage, manipulation and selective retrieval of information recorded in computer files.
- Processing of data that may be interfaced with other software packages, in accepting files from and creating files for – particularly for word-processing – filing and retrieval and electronic spreadsheets.

It is anticipated that students will work with four main high-level programming languages – BASIC, COBOL, FORTRAN and PASCAL, meeting the industry ANSI standards, and in the case of BASIC to be equivalent to MicroSoft BASIC perferably with graphics extension.

The key aspects of the educational environment at TAFE Colleges which affect the efficiency of the learning process include:

- Student access to a terminal;
- Ease of communication between teachers and students, both visually and aurally;
- Reliability of computer equipment.

By introducing microcomputers, the colleges will be able to carry out the educational process independently, the main computer network thus avoiding maintenance of the telecommunication lines – crucial in the case of colleges in remote locations.

Teachers also hope to get large-screen medium-resolution monitors connected to their terminals, greatly enhancing teacher interaction with the 15-student classes. Such computer monitors can already be interfaced with some microcomputers.

It is also expected that each school will get some high-speed dot matrix printers, capable of printing 132 characters per line in compressed mode on standard format paper, and similarly wide VDU screens or with horizontal scroll facility are considered.

In some colleges the equipment may be interfaced with the analog-digital converter, so that some microcomputers might be used in analyzing data in laboratories of chemistry or physics.

Introduction of computers into tertiary education, and possibly microcomputers in the near future, has obvious potential. But professional help may be needed to guide both the public and private sectors in eliminating redundant teaching practices, providing adequate professional standards and assisting in equipping educational organizations with proper facilities.

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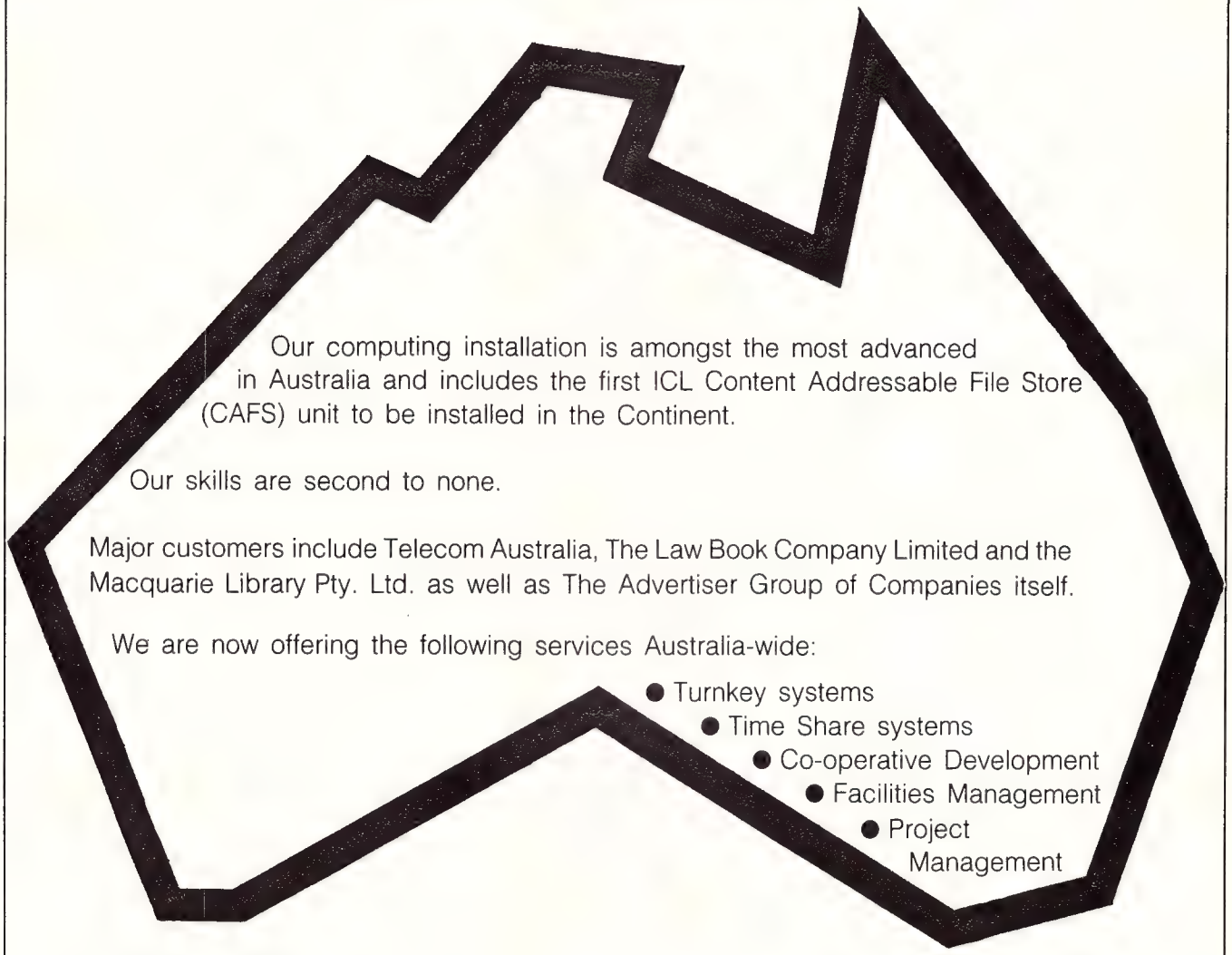

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# A Small Business Computer, Small Business Three-Step: Database, Word Processing And Spreadsheets

We believe in our office that if we can master word processing, spreadsheets, and data base we will know enough about computers to keep our small business competitors at bay and our clients happy for quite a while. The process is, however, time consuming and costly. We are always on the look-out for new machines and other bits and pieces which will hurry up the process and keep costs down.

There are many fears involved with a new computer purchasing decision. One is the fear of total or even significant machine obsolescence occurring upon ripping open the box.

In our office we've come to terms with many of these fears. We use Wordstar, Supercalc and dBase II on our CPM Apple and Osborne machines. We are not keen to be first on our block with the latest electronic whizzmo because we've learnt that our bank manager won't allow us to be so, nor do we really have the time.

These then are our biases, and so ends this long and somewhat wordy description of where we are coming from and what baggage we are carrying with us. Could the DEC Professional be the next machine for us?

**The Pro 350 as the three-step dance partner**

A not unnaturally favourable review of the 350 in a US magazine sent to us by DEC Australia, said: "One of the problems in displaying the machine is that there is no direct comparison with other systems."

Forget other machines, maybe the comparison required is as follows: Is a Pro 350 purchase going to be a bigger problem than the ones you are trying to solve with it! More specifically:

- Can the Pro 350 be seen as a good first business computer?
- Or as a good second-time-around, let's-start-again-for-God's-sake machine?
- Or is it only for scientists, computer-literate company treasurers and programming people who have been making their living with computers since the time we all thought that computers were only good for airlines and gas companies?

The DEC Professional 350 is at the top of DEC's personal computer range. Beneath this machine are the other members of the "300" series, the 325, and the less endowed Rainbow and Rainbow Plus.

By the time you finish buying a fairly basic configuration of the 350 you will be able to carry the change out of $15,000 around you without fear of a mugging. At this price it is roughly comparable, in price anyway, to an equivalently optioned up IBM-PC.

The machine itself is quite compact. It comes with a central processor chip called the 11/23 – an offspring of the PDP 11/70 chip which made DEC rich, famous and the second biggest computer company in the world. When DEC first released this machine there was very little software available for it. Everyone said nice face, shame about the legs. These days, there is a good deal of software available, some of it modified versions of applications written for larger DEC machines and some of it written by third-party vendors and then tested and given the DEC seal of approval.

One day no doubt an MS/DOS option board will become available for the 300 series as it is on the Rainbow thus allowing access to all of the stuff currently available and being developed for the IBM-PC.

The colour screen is an option and great if you can afford it. The Pro 350 has four times the colour resolution of a colour TV set – well, a US TV set anyway – 960x240 picture elements or pixels. This we are told is a lot and it does indeed look like a lot.

The keyboard is simply fantastic; much better than the IBM-PC attempt. It is chock-full of function keys, has a great feel to it and nothing gets in the way of anything else.

And nor will anyone complain about the relative silence of the machine either. Gone are the whirrings and plunk, plunks of our old disc drives. It's the difference between mum's old Frigidaire and the new Westinghouse.

The 350 comes with two double-sided, double-density 5 1/4, 400K floppy disc drives and a good deal of immediate expansion capacity, namely in RAM (up to 1.0 Mega bytes in 256K increments) and hard disc (a 5 or 10 Megabyter). The 325 is a similar machine without the immediate expansion capability.

The 300 series comes with a DEC operating system called P/OS. It is based on the RSX-11M Plus operating system which gives it considerable compatibility with its mini computer parents. There is a stack of other programming languages available on the 350 including PRO/BASIC which again is said to be highly compatible with Digital's Basic on larger PDP 11 and VAX 11 systems. It is a relatively simple matter to link the 350 with the larger DEC minis using products called the Pro/Tool Kit and the Host Tool Kit. One of the major markets for the 350, it then appears, is the professional programmer.

The word processor which comes with the machine is called Prose. It is de-

scribed in the machine's glossies as a "baseline" word processor. This it is.

It is a very basic program, quite simple to use and, to some extent, a little on the slow and cumbersome side. To test the user friendliness we whipped straight into Prose as soon as we figured how to turn the machine on. We have yet to refer to the Prose manual.

Compared with Wordstar this has two disadvantages. The first is that it takes not one but two or more instructions via these boxes to get what you want done.

Nevertheless, for the new user and for those who have no desire to "understand", the Prose menus and help features will most likely remain a blessing.

The menu/help feature is common to all the Pro 350 software we tested. It is difficult to avoid jumping through the pre-determined menu hoops on the 350.

There are a couple of other approved word processors available from DEC for the Pro 350, most notably one called LEX II; if all else fails one can always install Wordstar on the Z80A chip!

**Spreadsheet and the true meaning of a large net worth**

Electronic spreadsheets are, we expect, an introduction to something far more sophisticated – namely financial modelling. A PRO/Spreadsheet comes with the 350. It is not as good as Supercalc and therefore not as good as Visicalc nor indeed Multiplan.

Much more impressive however are a couple of programs called MAPS/PRO Financial Modelling and MAPS/PRO Graphics. MAPS can be used on the 350 or in a distributed environment. If you are careful and probably smart enough you can use MAPS (Management aid for Planning Strategies) to model a far-flung corporate empire and discover the answer to more complicated "what ifs" than you might care to nightmare about.

The MAPS package makes our spreadsheets look like they would do nothing if they had sand kicked in their faces. The MAPS user will, we are happy to report, have to spend a lot of time at the gym learning how to pump the thing. It is not for first-time users.

**Data Base and the 350**

We quite like dBase II. When we first purchased it, it was our most ambitious and expensive software decision. For months we tried to figure out its full capabilities, tried to follow the manual, experimented with different command structures and after more months than we now wish to recall, we finally felt comfortable with it. Just when we had it figured, everyone started talking about Lotus 1-2-3 and how it superseded our newly mastered and by now dearly beloved dBase II. Now we just sigh a bit, still think dBase II is pretty good stuff and carry on hoping no-one convinces us that one of the DEC-approved database software packages for the 300 series, called Datatrieve, is better than dBase II.

It may be. Help messages have finally appeared in the latest version (2.4) of dBase yet even so they are on the meagre side. Datatrieve is positively dripping with help messages; it is particularly helpful for instance with the creation of "domains" or data structures. If you don't like its long-winded help you can opt for a shortened version.

dBase II doesn't fit onto minicomputers; Datatrieve fits onto bigger DEC machines. The benefits should be obvious.

The maximum size of a dBase record is 1000 characters. Datatrieve can handle a much bigger record; we can't tell you how much bigger because the Datatrieve manual doesn't seem to tell you and "record length" doesn't get a guernsey in the manual's index. In fact, compared to dBase the Datatrieve manual is like a Vic 20 is to an IBM 360.

Overall, Datatrieve looks to be a good database package. dBase II is difficult to learn as no doubt is Datatrieve. First-time users should opt for dBase – there are more "sets in use", more people to ask for help when things look desperately inexplicable. Second-time users? Don't know. Depends on how ambitious one is, how quick the need to prepare your firm for the greater capabilities offered by Datatrieve on bigger computing systems.

**To sum up**

The Professional 350 suffered from a lack of available software when it was launched. From what we are able to understand DEC has made serious attempts to fix up this problem. It has, it appears, been reasonably successful. Still the range is by no means great. If a small business can afford it the Pro 350 can be seen as a premium product at a premium price. For the dollars, you get DEC service and DEC-backed quality software which can travel. The capital cost outlay of the 350 is heavy for a small outfit. Whether it will prove expensive for a small yet expanding firm in the medium term will depend on what IBM and others throw into the marketplace over the next couple of years.

These observations also apply to the second-time-around computer buyer. To the company treasurer and senior programmers, with or without present DEC commitments and for whom a few thou here and a few thou there is of no consequence, the 350 is quite a machine.

What car should you drive? It depends on what you can afford on capital costs and running costs, on how much driving experience you have, where you wish to go and how fast you wish to get there. We keep dreaming of hire cars.

**DEC PRO 350**

| | PRE-TAX | POST-TAX |
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*Steven Wall, Nick Lush, Information Service Editor, and Matthew O'Donnell, Systems and Finance Manager, of Horan Wall and Walker, the Information Company, tested Digital's Pro 350, with Maps/PRO and Datatrieve Prose.*

# Software Enhancements For PCs

Just when your new computer system is functioning efficiently, along comes a package with some improvements you could use.

And so the commonest dilemma is: should you scrap your present system and install the new; or keep your system and fume every time you think of the extras you could have had.

There had to be a middle course and finally it has arrived: a relatively simple adaptor.

Like all great ideas, its genesis was equally straightforward.

"Would it be possible," asked the managing director of SMC SEICOM, "to run software written for one operating software CMP/M under another operating system?" The reply from Irvine Development Centre (IDC) of the US for Science Management Corp (its principals being SMC SEICOM, Seikosha and Tokyo Boeki) software people was swift: "Sure! We can use an emulator."

"No! What businessman is going to appreciate this? It must be something simpler. An adaptor!!"

From that exchange IDC, directed by Dr Jeffrey Bahr, set about developing the new tool. The result, the CP/M-86 adaptor for the OASIS-16 operating system, was introduced for the first time in the SEIKO 8600 multi-user and multi-tasking business micro-computer, now in Australia.

By introducing the CP/M-86 adaptor, the businessman is able to run his old CP/M programs, his new secretary does not have to go through traumas of getting used to the new word-processing package despite her fluency in one, which for her was just as good, if not better under the CP/M.

The CP/M adaptor creates an illusion that the user is interacting with the CP/M-86 operating system.

Performance tests have shown that under the CP/M-86 Adaptor, SEIKO 8600 executed the programs at 90-120 per cent of the speed of execution under the CP/M-86 operating system.

The CP/M adaptor can be used in a variety of ways:

- To read and write the CP/M diskettes, thus enabling file transfers between systems;
- To gain the advantages of the OASIS-16 operating system while performing commands of the CP/M-86;
- To extend the set of OASIS-16 commands and application programs;
- To invoke the adaptor-controlled program directly from the keyboard as well as from the EXEC file or a CSI (Command String Interpreter) statement called from the OASIS program in BASIC or "C".

Despite the CP/M files consisting of file name followed optionally by the file type, and allowing almost any character


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in each of these fields, CP/M Adapter converts any CP/M file so it would not conflict with the OASIS-16.

This conversion process includes:

- Changing the lower case into upper case letters;
- Replacing all illegal under OASIS-16 characters with '$';
- Creating a new file name – NO$NAME – in case of the missing CP/M file name;
- Creating a new file type – N$T – in case of the missing CP/M file type.

Also the text files under the CP/M have a different format to those under OASIS-16 operating system. Very simple to execute, CONVERT command reads the given file and then changes it to the opposite format. After completion of the conversion, the user is informed of the new format for the file submitted for conversion.

The OASIS-16 operating system is based on the library concept which greatly reduces the size of the main directory while also decreasing the time required to search the files.

The system is very user-friendly, while patterned after operating systems previously available only on main-frame or some mini-computers.

It provides the following features:

- Multi-user operation;
- Multi-tasking operation;
- User accounting;
- Password protection;
- Automatic file and record locking;
- Large disc and large file handling;
- Multiple printer spooler;
- Hardware-independent program interface;
- Language-independent message and help text.

While just a few years ago several mini-computers could hardly go over 8 users in the multi-user environment, today's SEIKO 8600 microcomputer is easily handling 8 users, and the company is working on matching the hardware capabilities with the potential of the OASIS-16 to handle up to 32 terminals.

The OASIS-16 features do not end here. Many computer users experience frustration when they try to run 13-sector diskettes on the same computer while the new DOS (disc operating system) requires 16 sectors.

That problem simply does not exist under the OASIS-16 operating system. The system provides the user with the menu, and the user just has to declare the number of sectors, tracks etc, showing the way the diskette was formatted. SEIKO 8600 under OASIS-16 happily reads the entire diskette as if it was pretending to be an IBM-PC, or APPLE, or any other microcomputer.

This CP/M-86 adaptor should not be regarded as replacing the MP/M-86 operating system. MP/M-86 provides many more operating system functions, and programs written to be executed under MP/M-86 would run more efficiently.


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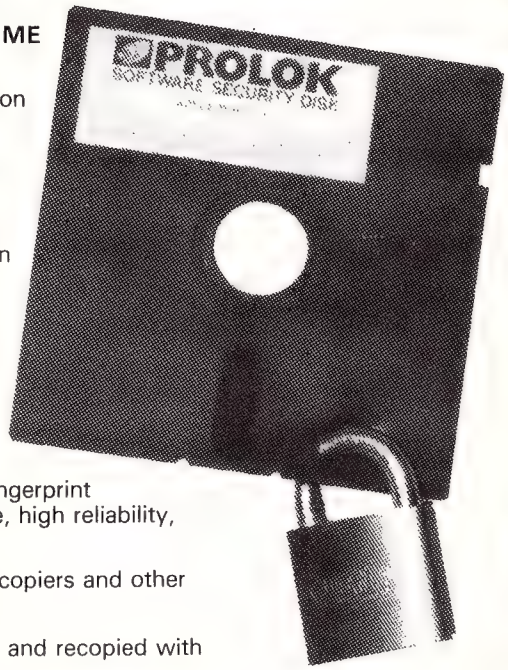


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# Systems Need To Talk

## If Dorothy Dix was here today, she might receive a letter like this.

*Dear Dorothy,*
*I recently purchased a wonderful, fantastic, high tech, labour-saving device – a personal computer. It has all sorts of useful software and I'm sure it will make a big difference to our organisation. When we get it going that is.*

*The first problem is that the computer refuses to talk to our printer. As you can imagine this has caused a bit of a problem. Then we wanted to transfer some files from another small system we have been using. It seems to me that no two systems are ever the same. Disc sizes and formats are always different and the piece of wire we ran between them did nothing except waste even more time.*

*Life wasn't meant to be this hard! Now some idiot thinks it would be a great idea to connect the personal computer to a mainframe. It's just all too horrible.*

*I can't take much more of this! Can you help?*
*Signed, Frustrated*

Well, Frustrated, there is good reason for you to feel that way. The "Dear Dorothy" story relates to experiences we had in our own little company. We have an IBM-PC, two Osborne I's and an old Zilog MCZ20. An NEC Spinwriter on a serial communications line is shared between these machines.

When we purchased the IBM-PC we found it could not talk properly to the

*Trevor Housley could well be Australia's best known data communications specialist. His small but thriving Housley Computer Communications is based at Lindfield, Sydney.*

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spinwriter and we had to write ASSEMBLER routines for the PC to make it work.

We also wanted to transfer files from the Zilog to the PC. Disc transfer is out of the question because the machines use different size discs. So, a communications link seemed to be the answer because both machines have an RS232 port, and each can handle asynchronous communications. It should be easy to transfer the files, you say!

In theory yes, in practice – not quite so easy because the two machines use different flow control philosophies. The Zilog uses XON/XOFF while the PC manipulates signals in the RS232 interface for flow control. After a couple of hours' research we modified the Zilog software and were then able to transfer files.

That may sound easy but remember we are very experienced users. We know communciations and we are very familiar with microcomputer hardware and software. The average user would have had a real problem like poor old Frustrated.

Nevertheless, PCs are appearing everywhere and there is a growing need for them to communicate with other PCs, with mainframes and with service bureaux. Although they are fine for small jobs, PCs are notoriously slow and for larger jobs, users want to get easy access to the processing power of a mainframe. Also, file handling on a PC is limited and users want access to the storage capacity of a host.

- One approach we may use is terminal emulation. The PC pretends to be a conventional terminal to the host, at the same time offering processing capacity to the user. All this, perhaps, at a lower cost than the conventional terminal.
- Second, the PC may act as a remote job entry terminal to access the data in the host files and then process it locally according to the user's devices.
- Third, the mass storage on the host may be used to provide a virtual disc to the PC so that it behaves as if it were a free-standing PC with additional disc capacity.

**Why PC communications?**

Let's quickly compare the use of intelligent terminals, such as PCs, with a centralised processing system. Why not centralise the processing power and make the MIPS available to users at conventional visual display terminals via a communications network?

Well, in the first place, the PCs are probably cheaper than a great many terminals and they have access to such a large range of software for file handling, spreadsheets and word processing.

Secondly, and perhaps more importantly, in the centralised case the host must be powerful enough to handle the peak traffic that is generated when most of the users are active. In such a system, performance degrades very quickly as the load increases past a critical point. It is not a graceful degradation either – it is a non-linear degradation as shown in figure 1.

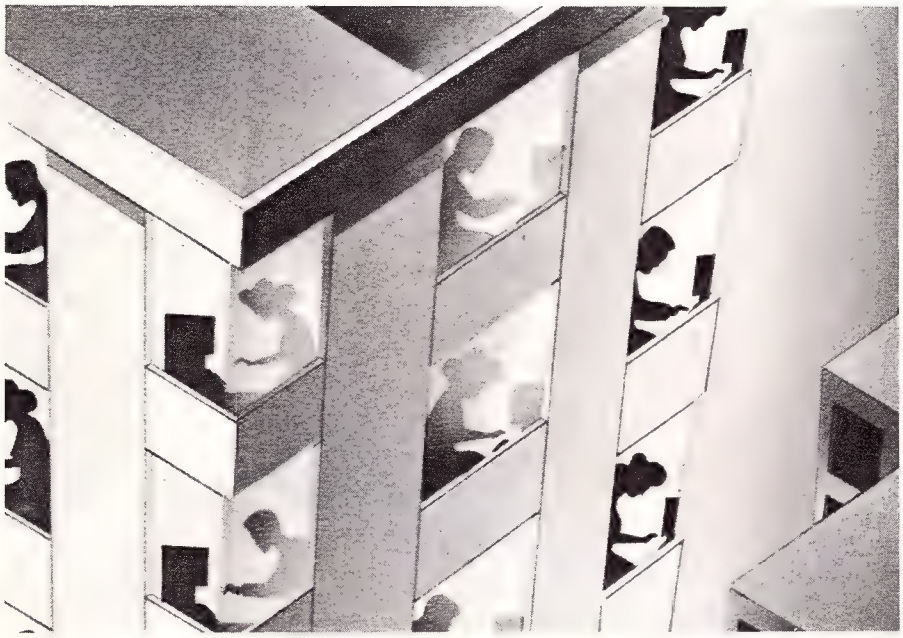
Using PCs or some other form of intelligent terminal reduces this effect because of an underlying rule of computer communications. There is a tradeoff between the amount of data that you send and the amount of processing that you do on the data before you sent it.

For example, with a "dumb" terminal, every character you enter on the keyboard is immediately sent to the host computer and, in most cases, it is echoed back as a means of error detection. If the terminal were replaced by a PC then the data could be made into a file on the PC without host interaction. At an appropriate time, the file can be processed on the PC to produce perhaps some summary results which need to be sent to the mainframe.

This transmission is shorter than if we had sent the whole file and it may be further reduced by the use of data compression and by the use of efficient protocols.

George Weston Foods Ltd is a case in point. For more than 5 years GWF has operated an Australia-wide network of intelligent terminals with great success. A quick look at one of their order entry applications will illustrate the attractiveness of the PC mainframe communications approach.

Every evening, delivery van drivers bring in order sheets from their customers for delivery the next day. The orders are entered into the intelligent terminals which can perform basic editing and validation functions before storing the data on floppy disc. As the orders come in, batches of a dozen or so orders become a file on the floppy and, periodi-



cally, the files are streamed down the line to the host computer.

**Start**

The host computer runs in what I call an "on-line batch" mode and it periodically executes a batch program against the files that have been building up. The results of this processing include invoices, delivery dockets and run sheets for the drivers and this information is sent out to the intelligent terminals where it can be printed immediately or saved on floppy disc for subsequent printout. The terminals are left running 24 hours a day so that reports can be printed after hours.

PCs or intelligent terminals are ideal for such a non time-critical application. Each communications line has several clusters of terminals multidropped and there are up to four terminals at a cluster. To operate such a system in a "real-time" mode where every order was transmitted straight to the host for processing, immediate response exposes the user to the non-linear performance problems shown in fig 1. By batching the data and sending it from floppy disc, the load on the communications line can be evened out. The communications network therefore needs less capacity and costs are greatly reduced.

Clearly, such a system is fine for non time-critical data but what about urgent inquiries? Well, that's easy too! The intelligent terminal is able to determine priorities and the urgent inquiry can be despatched immediately. Such a system gives us the best of both worlds. We can spread the non-urgent work over the working day and at the same time handle urgent inquiries with a good response time.

**How do PCs communicate?**

So, it looks as though it is a good idea to have PCs talking to the host. How do you do it? The simplest way is to emulate a teletype and most PC communications packages do this. This is, in fact, the simplest form of data transmission you can indulge in – pure asynchronous character transmission.

The problem with simple communications systems like this is that there is limited error detection. If you are sending pure text information, this may not be a problem but for numeric information it is a problem. This is because we can correct most text errors on sight, whereas we cannot easily detect errors in numerics.

So, if you are interested in maintaining the absolute integrity of your data transmission, you need to use some form of error detecting and correcting protocol. And herein lies the problem. All computer suppliers' protocols are different and, if you want to communicate with your mainframe, you must conform exactly to your host's implementation of the protocol. To make matters worse, many computer suppliers have different implementations of the "same" protocol – this makes it difficult to match.

Well why not have someone write a protocol program for, say, Burroughs and distribute this program on floppy disc so that we merely load the program and then we are ready to go? This approach poses problems. First, most PCs have an asynchronous communications port but do not have a synchronous port. Synchronous transmission is almost always used for high-speed mainframe communications. Secondly, the PCs are very slow and communications protocols require fast execution in order to be efficient. If the PC is able to provide the fast reaction at the protocol level, then this would almost certainly degrade all other functions on the PC and vice versa.

So, the solution for protocol emulation is, in most cases, the addition of a special interface card that has its own processor and a synchronous port. The processor on the interface card is dedicated to the line handling functions and allows the processor in the PC to go about its business relatively unencumbered.

The availability of such interface cards is, at present, limited. Those that are available offer the most commonly used IBM protocols such as 2780/3780 remote job entry protocols which are used for file transfers and the 327X protocols which are used with interactive terminals. So, if you have an IBM host using these protocols, there is a fair chance that you can arrange to have a PC communicate with your host. Also many other mainframe suppliers support these protocols so you may be able to use them on your installation.

Another terminal emulation approach is available to IBM users (that is IBM host and IBM-PC) which allows a PC to be connected into an IBM terminal control unit. The 327X terminal typically has a control unit which is connected to the mainframe either on a parallel input/output channel or on a communications line running under SNA/SDLC or Bi-Sync. The terminals are connected to the control units by a coaxial cable.

An interface unit, called the IRMA Card, when fitted to an IBM-PC allows the PC to connect into the 327X control unit just like any other 327X terminal. Doug Ruttan of Sourceware, the distri-

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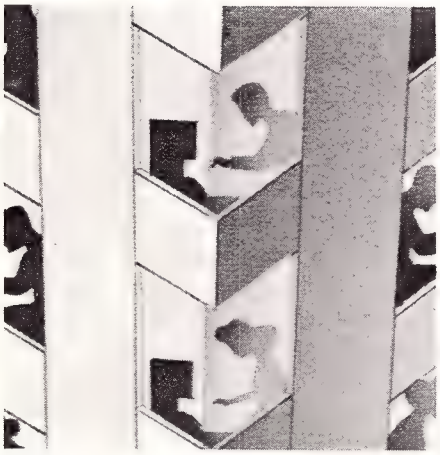

butor of the IRMA board, says it is by far the most popular means of interfacing IBM-PCs to IBM hosts at the moment. The IRMA card does not necessarily work with non-IBM lookalike systems because the control unit to terminal protocol may be different to IBM's.

There are several interface cards available for terminal emulation, particularly for the IBM-PC. An Australian company, Netcomm (Australia) Pty Ltd, has produced comms cards for Apple computers and has, in fact, secured a contract with Apple itself.

Netcomm designed a versatile microprogrammable card to enable the Apple to communicate with hosts using 327X or 2780/3780 protocols. It can also handle asynchronous communications and the Netcomm people are working on other protocols.

Neville Diepell of Mobil uses the Netcomm/Apple combination and found it excellent for sending spreadsheet data over the international dialup network between Fiji and New Caledonia. Mobil has also tested the 327X emulation capability of this card and has found that it works well, so far however, in an experimental mode. Eventually, says Neville Diepell, the 30 or 40 Apples already in use may be fitted with this card.

David Groom of ACI has tested most of the IBM-style communications options for the IBM-PC and finds that most work well – now. He finds that 327X emulation is attractive for many users because they can replace a fairly expensive terminal with something a little cheaper to which they can download data and then manipulate it. ACI operates the AUSINET databases and many of its clients use PC to access and update the databases.

Groom says that, in the IBM case, the PC emulates the 327X pretty well straight down the line, only about 6 keys being different. David Groom, and others, point out that you need to be careful with terminal printers. At present, most emulation packages do not handle the printer as a separately addressable unit which means that the printer becomes, in effect, a screen copy device.

Yet another approach is used by Ed Murray at Friends Provident Life Office in Sydney. Friends has an IBM host using SNA for its communications. The life agents have PCs such as the NEC APC, APPLE II and IBM-PC. They use them to perform basic processing on the PC and more sophisticated processing on the host.

The life agents use this system for applications such as preparing presentations and proposals, policy inquiry, word processing and electronic mail. The PCs use simple asynchronous communications which keep the cost of the PC down. They connect, via dialup lines, into a systems technology protocol converter which does all of the communications conversions necessary to make the asynch PCs look like SNA devices to the host.

"In the early days we had problems with software that did not work," says Murray. "But that is all fixed now." Once again, the IBM 327X emulation in this system did not initially support the printer as a separately addressable unit but a system modification has now allowed this to happen.

Another application used at Friends and many other organisations is to run a software package on the host which makes the host appear as a virtual disc to the PC. This greatly expands the disc capacity of the PC and also enables the transfer of data between applications in the PCs and the host. One problem with this approach is that, at communications speeds, file transfers can take a long, long time.

One enterprising software packager, according to Murray, attempts to handle this problem by triggering the PC's loudspeaker during the file transfer so that the speaker makes disc noises to appease the operator.

**PC to data base/service bureau**

Thousands of Australians access local and overseas databases using teletype compatible terminals. Typically the Overseas Telecommunications Commissioner's MIDAS network is used for overseas databases and ACI's Ausinet and/or Telecom's Auspac can be used for local databases.

Usually a person searching a data base puts relatively small inquiries into the system and gets voluminous output from the database. For example, an inquiry on a library database for references to articles on satellite communications could produce dozens of pages of output. With a conventional terminal you print this as it comes and it is a laborious process.

A PC allows you to send the data to disc for later printing. This lets you use a higher transmission speed which cuts down the time it takes to send the file. You can then browse the file at your leisure and, of course, you can use the PC to do some local processing on the data to present the results in a form that you want.

Bureau operator Computer Technology has been using PCs and intelligent terminals for some time. The main application is data entry – as with the Westons example above, users enter their data into the terminal, store the data on floppy and subsequently send the data to the host for processing. In the communications mode, the terminal emulates an RJE terminal using 3780 protocols.

Tim Forman of CT is very happy with the performance of the systems which are used mainly in payroll, accounting and retail applications. The PC systems

are based on the Ausdata system, while other intelligent terminals allow handwritten data entry via a micro pad and an intelligent interface. Also point-of-sale terminals connect into the system so that details of the day's trading can be sent to the bureau after hours.

In-house local networks of PCs are becoming attractive as a means of sharing expensive peripherals such as high-quality printers and hard discs between various PC users. These local area networks also allow the sharing of data between participating PC users and they offer a lot of promise for the future. There are many products on the market, mainly aimed at Apple and IBM-PC users.

Right now most LANs are in their early days of operational use and provide limited functionality. This problem will quickly fade away because development is proceeding at a frenetic pace.

Another criticism is that, when two or more users are simultaneously using the LAN, the time delays for file transfers stretch out. The saving grace is that, in most operational modes, it is unusual for two users to be simultaneously carrying out network operations.

PC to PC communications is desirable for all kinds of reasons such as transferring files from one machine to another when the disc formats are incompatible or when distance is a problem.

For example, our consultants use our pair of Osbornes for performing network design calculations and they carry the machines interstate. If the consultants wish to get a second opinion on a design, they may transmit the programs back to the main office so that a colleague can run the job locally and review the results.

Videotex terminals could be PCs; once again enabling the user to manipulate the data that is received.

Teletex is likely to be a widespread application in years to come. Most PCs are used as word processors and Teletex is a new international standard for communicating word processors. If you know anything about word processor communications, you will know that they are all different. They use different character sets, protocols, control functions, etc.

The Teletex standard (not to be confused with Teletext, which is a data transfer system using television transmissions) defines the character sets, protocols, etc, that are needed to transfer an exact copy of a page of information from one machine to another via a communications network. We can expect to see Teletex protocols being implemented on add-on cards.

**Conclusion**

What we see now is the tip of the iceberg. Development in the area of PC communications is so fast that this article can only be regarded as a snapshot taken in May 1984. By the time it appears in print, it will be starting to be superseded.


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# Mass Communication Is Closer Than You Think

## VIATEL will be here by the end of 1984

At the end of 1984 Telecom will have its national videotex network in operation, called Viatel. This adds a completely new dimension to the use of personal computers because:

- Personal computers can be used as videotex terminals.
- Software can be downloaded from videotex data bases.
- Electronic mail between personal computer users is possible through videotex.

Videotex is a new information and communications system that works with a TV set, the telephone, and a central computer.

There are public and private videotex systems. Some of the public Telecom videotex systems are: Viditel in the Netherlands, Prestel in the UK and Bildschirmtext in West Germany.

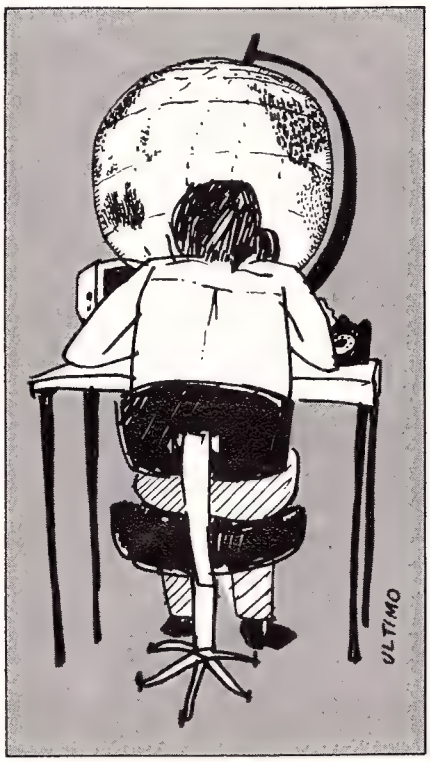
Videotex is a two-sided operation: on the one hand, there are information suppliers and, on the other, subscribers. Companies, institutions and other organisations can have information about activities input into the videotex computer. This information can then be called up on the TV screen by subscribers.

Basically, anyone who has a TV and a telephone can become a videotex subscriber.

TV sets, however, have to be made adaptable for videotex. Special terminals are already available and videotex adaptors can be used together with normal TV sets. Several personal computers are already equipped with a videotex chip or chord. A modem is necessary for the connection with the telephone set.

Videotex has the potential to expand into a mass communications system, initially however it will mainly be used

*Paul Budde, as we understand, is Australia's only fulltime videotex consultant. In September last year Paul opened up Paul Budde Communications, of Roseville, Sydney, and is already operating other media services. The initial aim is to help organisations experiment with videotex on low budgets.*



for industrial purposes.

At this moment there are 4 main videotex standards and they are like the different TV and video standards, not compatible. The 4 videotex standards are: Prestel (UK), CEPT (Europe), Teletel (France) and NAPLPS (USA). Australia will use the Prestel standard; at this moment the world's largest system. The main difference between Prestel and the other standards is that Prestel has in comparison with the others poor graphic facilities.

The most important features of videotex are:

- Interactive transactions.
- Actual information.
- Gateway to other computers.

A retail organisation can offer its products through videotex. By dialling into the videotex computer, and keying the number or name of that particular retail organisation, one enters the so called "frames" or "pages" in the videotex computer belonging to that organisation. Through indexes, one can have a look at the available products, and on an ordering frame on which the name of the user is filled in, products can be ordered.

One step further is that the Telecom computer is linked by a gateway with the computer of the retail organisation itself. This means that stock and other data will be updated automatically after each transaction.

Especially in this field the personal computer plays an important role. Smaller shops can have full computer service through videotex and the personal computer takes care of administration, stock ordering, and other business systems.

The personal computer will also play a very important role in home banking and stock exchange programs.

Financial calculations and portfolio comparisons are very popular personal computer applications.

Videotex was introduced in Europe by British Telecom in 1978. One year later the Dutch PTT and the German PTT started their public videotex trials. They were all aiming for the big consumer markets.

The PTT organisations wanted to promote the use of their telephone lines, especially after business hours. They thought that videotex would be easily accepted by the consumers because there is a TV and telephone penetration of over 85%.

But in the last couple of years, they realised that the consumer did not accept videotex on a large scale because of a number of reasons:

- Adaptors and TV sets were expensive or not available.
- Videotex as a new communication medium will, like all other new developments, take at least 5 to 10 years before it is accepted in the consumer market.

The big growth at this moment is in public videotex systems. Closed communication systems between an organisation and its dealers, agents, retailers or clients, are already in operation. There are at this moment, worldwide, some 600 systems, and at the end of next year this will increase to 3,000 systems.

Private videotex systems are quite often tailor-made products. Complete (stock) calculation systems, banking and other financial applications are available.

This means that quite often the users need intelligent videotex terminals, which either download software, or in an on-line situation, can be used as a fast interactive computer system. In most of these cases personal computers are used. Further developments in this field are already taking place.

In 1980, Reader's Digest started a data base service for personal computer users. At the present time, some 35,000 personal computer users have a subscription to this huge data base. The entrance fee is $US100, the subscription is $US10 a month. All kinds of tele software are available; games and hobby software – but also very specialised financial and medical programs can be downloaded to the personal computer of the subscriber of The Source.

In September 1982, British Telecom started Micronet 800 – a data base for personal computer users, accessible through British Telecom's national videotex system, Prestel.

By using Prestel, personal computer users can utilise the electronic mail service as well as communicate with other Prestel users without a personal computer. There is also the possibility of exchanging software.

In October 1983, Philips started its personal computer software database on the Dutch public videotex system. 2,500 frames with software are available for the Philips P2000 personal computer users.

Philips is selling its personal computers with videotex software, the necessary cables and special videotex information, as one product.

As soon as videotex comes off the ground in Australia, there is the possibility of starting a similar personal computer software database on Viatel, the name Telecom Australia has chosen for its national system.

Most probably Telecom will not be the organisation that will start such a service and the question is whether a personal computer hardware or software organisation will take the initiative.

The author of this article will gladly support such an initiative.

With the announcement that Telecom will start the public system, some interesting developments have taken place.

CAS/Mayne Nickless will offer special videotex services for personal computer users. No further comment was available as studies are still in progress.

IBM announced last year that it will produce its personal computer here in Australia. As IBM has one of the most advanced personal computers that can support videotex, one can expect that the know-how and experience that has been built up by this organisation can be of great value for further personal computer/videotex developments, not only in Australia, but world-wide.

GEC will be the distributor of MUPID, the world's first dedicated videotex microcomputer. The Austrian PTT ordered the University of Graz to develop this product. It is a personal computer plus videotex edit keyboard plus a user terminal all in one. A MUPID terminal can support several videotex standards, and it is possible to make very advanced graphics (as used in the NAPLPS and CEPT videotex standards).

Visionhire is marketing adaptors for personal computers. The Zycor C1 operates with personal computers like IBM, Sirius and Wang. The Zycor T1 operates with computer terminals, eg VT100, Ciffer, Newbury etc. With these adaptors, existing personal computers can be turned into videotex edit and user terminals.

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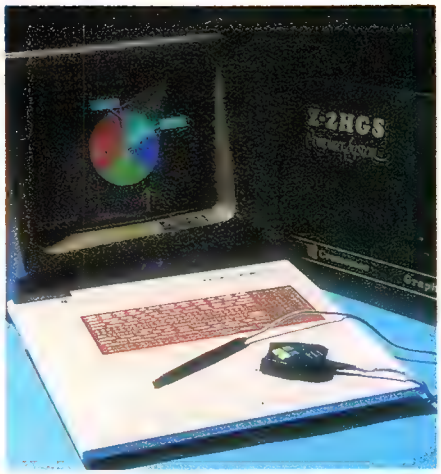

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# Videotex Will Grow With Our Kids

Electronic information futurology is set to create its own space age throughout this year. Not conquering outer space frontiers but selling space on computer screens.

The versatility of the microcomputer, which can combine data based communication facilities with other office functions such as electronic mail, word processing and computer graphics, has won hands down over the dedicated word processor.

Towards the end of 1983, we saw Teletext take a back seat in favour of videotex technology.

Teletext is a means of broadcasting information which is displayed in coloured text and graphics on a TV screen. Whilst it is informative, it has the disadvantage of being able to be used in one direction only, in that the user cannot interact with the system. Teletext "pages" (screen information) cannot be retrieved or stored.

Videotex, sometimes known as viewdata, transmits its information over ordinary telephone lines and is interactive with the user. PRESTEL in the UK and TELIDON in Canada are linked by the public telecommunications system in their respective countries.

Over the past four or five years, we have seen a number of trial and error situations involving videotex technology. An article in The New York Times, reprinted in The Australian Financial Review headed Electronic Newspaper Makes Its US Debut, says:

"Last week the Columbus (Ohio) Dispatch began transmitting its entire editorial content to 3,000 home terminals around the country on a computer system called Compuserve. For $US5 an hour, the home viewer can sit down at a computer keyboard and call up on the computer screen a list of all the stories appearing in the Dispatch that day, select any article and read it or scan it, much as he would a newspaper spread out before him, and then go on to the next selection. Also the viewer has access to articles by the Associated Press, plus games, advertising and other consumer services."

In the same article, Jim Batten, a vice-president of Knight-Ridder Newspapers which was conducting similar experiments with two-way systems, commented:

"It is also noted that you cannot tuck a computer terminal under your arm as you head for the subway, or use a home computer to swat flies, wrap fish or house-train the dog."

Two years later, The New York Times reported the results of the Compuserve experiment. The report was reprinted in The Australian Financial Review (4/10/82) headed Video news poses no threat to press. It began:

"The vast majority of Americans are not yet prepared to read the news each day on the home television screen, according to researchers who led a two year newspaper industry experiment offering that service."

Meanwhile, in the same year back in Australia, giant retailer Myer Emporium was dabbling in diversification with its Videonet system, hoping to make the world go round with a total information package consisting of market research and an information search and retrieval service, costing something over a million. A year later, Westpac Banking Corporation bought the Videonet operation from the Myer Emporium Ltd "for an undisclosed sum," with the purpose of introducing electronic home banking.

Electronic transfer of funds sounded great until we began to get dangerously close to the Orwellian year 1984 when members of the public began to wonder (quite rightly) about their privacy should some sinister Big Brother communications problems occur and what would happen if their seven-year-old got hold of their password and played havoc with their accounts?

The potential market for videotex is huge, but it is still a potential market. As reported in The Age on 1/7/83:

"Already a New York-based software house has released software which allows, with simple modification, the fast-selling IBM PC to display videotex information. And, if special software can be written for the PC, it can certainly be written for cheaper home computers."

In Australia, Computer Accounting Services won the AFTA travel contract for its videotex system, which the press described as "lucrative" but its availability does not appear to have been advertised as yet. Control Data Corporation's CYBERTEL system offers travel, agriculture, finance and motor vehicle information but is still not enough to attract prospective PC users.

However, with the growing computer literacy amongst children, perhaps it will be in the education area that videotex will experience its greatest success.

---

*Carol Quigley, of Balgowlah Heights, Sydney, is one of the most experienced database compilers in Australia. Using an IBM PC – plus wordstar – she has supervised from startup in April, 1982, the 50,000 citation Australian Financial Review database, AFRE, available off ACI Computer Services' Ausinet.*

# Software Locator

The update guide to new stock listings in Australia of business software.

Today's Computers introduces for the first time in Australia a full guide to the latest and most important in-stock software available for business and educational small computer users in this country.

Our initial list was compiled from more than 15 sources in three States. In our June issue this will be expanded to include other sources and other States.

Today's Computers takes responsibility for editing descriptions of products but does not guarantee any distributor or manufacturer's claims therein. We invite other sources to let us know about their new releases. Deadline date for our June issue is April 20. Ring our Software Locator editor, Laurel Allen, on 02 235 2641 for queries and additions.

**Top guide**

Our strategy is also to accumulate software releases, store them electronically in the following listing fashion and make them available off a new database of our own.

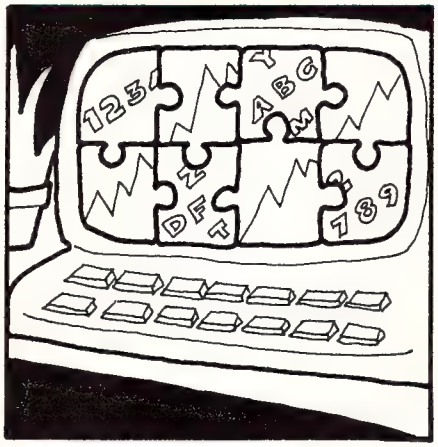
Software Locator is the top guide to new business packages for personal and small computers. Users and dealers, we believe, will find it a must.

For your convenience we have carefully divided up more than 60 packages into applications rather than suppliers. Then, for each package, we apply a simple and easy-to-read descriptive formula.

This is: name, source-address-phone number, description of application, requirements of storage and operating system, level of skill required and, lastly, price.

Software Locator is for you, users and dealers – let us have your comments.

## Integrated products



**ACCESS PAK**
JBA Micro
8 Help St
Chatswood, NSW 2067
02 411 1144
*Access Pak* is a data exchange product comprising 4 programs; Information Access; Wordstar to PeachText translator, Easywriter 1 to PeachText translator; VisiCalc to PeachCalc translator. Embedded commands are automatically converted by the translator programs into their Peachtree equivalents. Information Access is the bridge between Peachtree's accounting products (PBAS) and office productivity systems (POPS) and allows the user to create procedures to transfer data from accounting system files to PeachText, PeachCalc, or List Manager. Requirements: MS-DOS, 128k RAM, CP/M, 50K free of CP/M. Skill level: Intermediate. Price: $605.

**APPLEWORKS**
Apple Computers
37 Waterloo St,
North Ryde NSW 2113
02 888 5888
*Appleworks* is an integrated package of the 3 most-used software items; word-processing, data base management, and financial modelling. It is also available for the Apple III as III E-Z Pieces. It has simplified common commands and free movement across files in any of the three applications. The database can sort 800 records in 10 seconds. Tutor disc. Requirement: Apple III. Skill: Novice. Price: On request.

**CONTEXT MBA (HP 150)**
Hewlett-Packard
31-41 Joseph St,
Blackburn, Vic 3130
03 895 2895
An integrated modelling package that incorporates spreadsheet, word-processing, database, graphics, forms and communications. The various aspects can be windowed independently in up to 4 windows. The package includes very powerful maths functions and modelling formulae such as calculating net present value, internal rate of return, etc. A tutorial is included in the documentation. Requirements: 256K memory, but 512K memory preferred to increase workspace and speed, MS-DOS, HP-120 or HP-9816. Skill level: Intermediate. Hotline: 008 033 055. Price: Included in HP150 package.

**OPEN ACCESS**
Imagineering
3/579 Harris St,
Ultimo NSW 2007
02 212 1411
With *Open Access* you can crunch numbers, create 3-D colour graphics, write reports, transmit data around the world, access multiple files simultaneously and electronically arrange all your

appointments. It gives you access to all the information in all your programs at once. You can access to as many as five Information Manager files simultaneously. Tutor disk. Requirements: PC-DOS. Skill level: Novice. Price: Approx $900.

**PEACHTEXT 5000**
JBA Micro
8 Help St,
Chatswood, NSW 2067
02 411 1144
*Peachtext 5000* is a set of 4 applications: Peachtext word processor, Spelling Proofreader; Peachcalc electronic spreadsheet and List Manager. The wordprocessing system has an inbuilt thesaurus. The 4 systems are interlinked by a single master menu. Data from PeachCalc can be copied into a PeachText document. *PeachText 5000* permits preparation of budgets and business reports and the maintenance of mailing lists. Requirements: 128K RAM, MS-DOS, PC-DOS, 16 bit micros. Skill level: Intermediate. Hotline No: 411 1144. Price: $599.

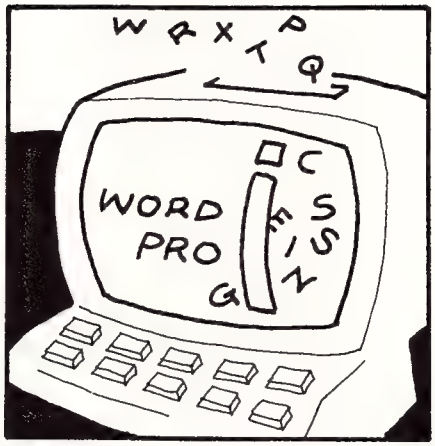
**STARBURST**
Imagineering
3/579 Harris St,
Ultimo, NSW 2007
02 212 1411
*Starburst* lets you design your own menus, and link popular programs. It acts as a shell program or front-end menu driver. *Starburst* uses a Word-star-like text editor to create menus exactly as they will appear on the screen. It can link and simplify entry to such popular programmes as Lotus 1-2-3, Wordstar, and dBase. Users can set up things like load, run and install, and go-to a particular ledger file, and then operate this with one keystroke. Requirements: 64K PCDOS. Skill: Novice-intermediate Price: $295.

**THREE EASY PIECES (III E-Z PIECES)**
Apple Computers
37 Waterloo Rd,
North Ryde, NSW 2113
02 888 5888
*III Easy Pieces* combines spreadsheet, data management, word processing and a desktop manager to handle utility functions such as loading, saving and formatting discs. The menu-driven program is designed for home and business use. Commands are similar throughout the program, which permits easy fileswapping between the three applications. *III E-Z Pieces* can communicate with Apple II, and use mass storage. See also Appleworks listing. Tutor Disc. Requirements: Apple II, SOS. Skill: Novice. Price: $395.

**VISI ON**
Imagineering
3/570 Harris St
Ultimo, NSW 2007
02 212 1411
*Visi On* needs a minimum of training. It gives 3 desk-top applications; spreadsheet, graphics, and wordprocessing in one package. Windows let the user move work from one file to another without having to swap disks and allows users to view a number of financial reports, graphics, and written reports on screen at the same time, and then, using "cut and paste", move information from file to file, and then print out combinations of financial reports; graphic charts of the figures, and written comment all on the same page. It is suitable for first-time management users who want computer power without computer complexity. Requirements: PCXT or PC and 5MB hard disk. Mouse. Colour graphics adaptor and monitor. PC-DOS 2.2. Skill level: Novice. Price: $1,499.

## Word processing

**BANK ST WRITER (CLASSROOMS)**
Ashton Scholastic
PO Box 579
Gosford, NSW 2250
(043) 283 555
Designed for primary and high school students and teachers who may never have used a computer, the Bank St Writer introduces word processing step by step. It uses sentence combining, open-ended dialogues, fill-in-the-blanks, so that teachers can connect their writing program to their own text books or students' own writing. Editing commands are displayed onscreen, with prompts. Available to schools, teachers and education institutions only. Requirements: Apple version requires, 48k Apple II plus Applesoft or Apple IIe, DOS 3.3, Atari 400/800/1200. XL Version re-




quires 48K, IBM-PC, Commodore. Skill level: Novice. Price $125.

**MAILMERGE**
Imagineering
3/579 Harris St,
Ultimo, NSW 2007
02 212 1411
*Mailmerge* is a program that works with Wordstar to perform special printing tasks. *Mailmerge* takes information from various locations and inserts it into a Wordstar document file automatically, re-forming paragraphs if the information extends beyond the margins. *Mailmerge* will take a mailing list from one file and a form letter from another to produce individual letters. One file can be put inside another, or can follow another as in the chapters of a book. Requirements: 64K on CP/M 2.0 or higher, CP/M 86, MP/M, PC-DOS, MS-DOS or Apple with CP/M option. Skill level: Intermediate. Price: $377.

**MEMOMAKER (HP150)**
Hewlett-Packard
31-41 Joseph St,
Blackburn, Vic 3130
03 895 2895
*Memomaker* is designed for people who want to create and revise documents without learning complicated word processing. What you see on the screen is

what you get on paper, ie, bold print, underlined words, justification. Information about commands is available instantly without having to reference a manual. A 5-lesson tutorial is included in the documentation. It is designed for the smaller document, rather than large books. Tutor disks. Requirements: 256K memory, MS-DOS, on HP 150 flexible or hard disk versions. Hotline: 008 033 055. Skill: Novice. Price: $237

**MICROSOFT WORD (APPLE MACINTOSH)**
Microsoft
PO Box 98
Terrey Hills, NSW 2084
02 450 2522
*Microsoft Word* uses the graphics capabilities of the Macintosh to allow full visual representation of the text and graphics on the screen, including proportional spacing and support for Macintosh's menus and dialog managers. Moving and copying portions of text, including moving text, including moving text between documents, is accomplished with the standard Macintosh edit functions of cut, copy, and paste. *Word* supports multiple windows. Requirements› Apple Macintosh. 1 disk drive. Skill level: Novice. Price: $315.

**MICROSOFT WORD VERSION 1.1**
Microsoft
PO Box 98
Terrey Hills, NSW 2084
02 450 2522
*Microsoft Word 1.1* is a mouse-driven, easy to use, see-what-you-get word processing program. *Version 1.1* has mailmerge facilities which allow for conditional merging of information. The data fields are large and the merge program is run from within the word processing package. Can include mailing lists from other data base programs. *Word* has mouse support. The mouse permits easy editing of the document. It has an online help facility, column formats, widows and orphans, and form letter style sheets as an added bonus. Requirements: 128K, 1 disk drive (160K), 80 column monitor, PC-DOS Word will run on exact IBM-compatibles such as Sperry PC and Columbia. Graphics board. Skills needed: Novice. Price: On request.

**NBI (IBM PC)**
Microbyte
PO Box 34
Hawthorn, Vic 3122
03 818 7929
*NBI* was originally marketed as the software to NBI's dedicated word processing sytem marketed in Australia by Remington. This new version is a streamlined model of the document-oriented program. You get three master diskettes, two manuals and an NBI printed board. The board includes 64K memory, expandable to 192K and a Motorola 6800 processor. The package provides a communications program that allows NBI file transfers between a PC and the NBI 3000 series. Tutor disk. Requirements: 64K memory, 2 disk drive on PC, 128K memory on XT, PC-DOS. Skill level: Novice. Price: $1,245.

**PFS WRITE**
Imagineering
3/579 Harris St,
Ultimo, NSW 2007
02 212 1411
*PFS Write* is a word processor where what you see on the screen is what you get when you print. Documents get a professional touch with features like boldface, underlining, centering, justification, page headings and footings and automatic page numbering. *PFS Write* works with other members of the PFS family as well as popular programs such as Visicalc and Lotus 1-2-3. Requirements: Runs on Apple II, IIe, III, IBM-PC, T1, TRS-80. Skill level: Novice. Price: $175.

**PFS PROOF**
Imagineering
3/570 Harris St,
Ultimo, NSW 2007
02 212 1411
*PFS Proof* is a spelling checker programme for use with PFS Write. It has a dictionary of 65,000 words, and is easy to use. The dictionary can be modified. Requirements: PC-DOS, MS-DOS, PFS Write, 128K. Skill: Novice. Price: $175.

**SPELLING PROOFREADER**
JBA Micro
8 Help St,
Chatswood, NSW 2067
02 411 1144
*Spelling Proofreader* finds spelling mistakes and typographical errors in documents prepared by users of PeachText. *Proofreader* comes with a 20,000 word dictionary and lets the user add, delete or maintain words. *Proofreader* makes it easy to create dictionaries for specialised needs such as engineering, law and medicine. A typical floppy diskette system using double density diskettes can check a 20-page document in less than a minute. Tutor disk. Requirements: CP/M (32K RAM), MS-DOS, PC-DOS (128K RAM). Skill level: Novice. Price: $175.

**WORDPERFECT**
Sourceware
4/73 Albert Ave,
Chatswood, NSW 2067
02 411 5711
Added to traditional word processing functions, *Wordperfect* has maths features, mailmerge, and searching and replacing, as well as a macro "remember" key. It also has multiple text columns, range capability, system-assisted hyphenation, speller and an optional sorter. *Wordperfect* has automatic formatting, alignment, justification, bolding, underlining, centering, wraparound, page numbering, repagination and copy/move features, plus file management capacity. Requirements: MS/DOS, (PC/DOS, Z/DOS). Data General. Skills level: Intermediate. Price: $650.

**WORDSTAR 3.3 PROFESSIONAL**
Imagineering
3/579 Harris St,
Ultimo, NSW 2007
02 212 1411
You never have to switch modes to edit on *Wordstar*. The screen shows exactly what will be printed. It offers such functions as simultaneous editing and printing, dynamic page break display, textmerge from another file, flexible formatting, control of margins and tabs, column and block move, automatic search and replace, decimal tabbing. *Wordstar Professional* includes Mailmerge, Spellstar and StarIndex. Menus at the top of the screens can be adjusted to give you the level of help you require. Requirements: 64K on CP/M 2.0 or higher, CP/M 86, MP/M, PC-DOS, MS-DOS, Apple with CP/M option. Skill level: Novice. Price: $1,200.

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**THE 16-BIT COMPUTER** Complete with Colour and Printer

**THE SOFTWARE** Word Processor, Spreadsheet, Speller, etc.

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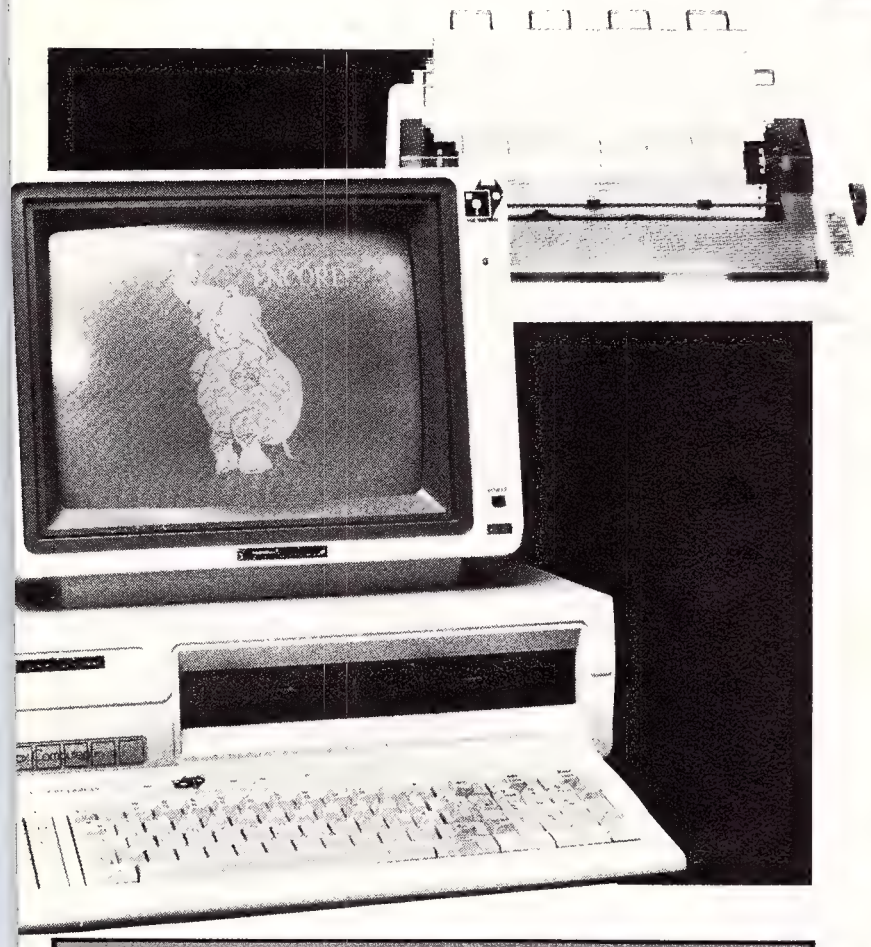

**Fox 2001** 16-BIT MICROCOMPUTER

## Complete system includes:

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**P.O. BOX 238 HORNSBY 2077**

## Job specific

**HIESTATE**
Hisoft
8 Alma Rd,
St Kilda, Vic 3182
03 534 0383
*HiEstate* provides a management, accounting and reporting system for real estate and property management activities. *HiEstate* maintains records on landlord, property, tenant and maintenance, and reports are available on every aspect of the operation. For example an immediate print-out can be made of such things as vacancy and arrears lists and notices to tenants. The program's banking procedure allows for the display of banking activities and *HiEstate* also allows for the printing of monthly landlord cheques. It is suitable for small to medium-sized real estate offices' rental management. Requirements: 5Mbyte hard disk, 128Kb RAM, PC-DOS, MS-DOS. Skill level: Novice. Hotline: 534 0383. Price: $2,995.

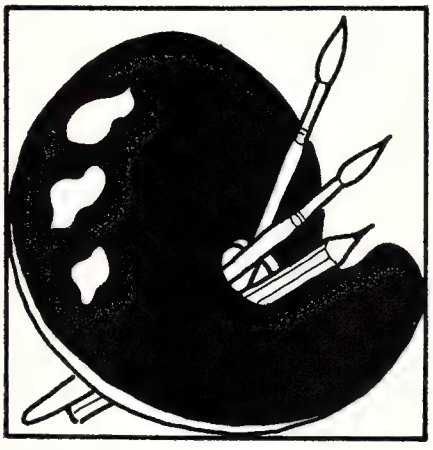
**HIFASHION**
HiSoft
8 Alma Rd,
St Kilda, Vic 3182
03 534 0383
*HiFashion* includes debtors and stock control and order entry. The stock system has been designed for garment manufacturers and has facilities for coping with style by size and colour requirements in various locations. The order entry system can track forward and back ordering. It will blow down to raw material requirements and purchasing and will re-integrate for financial reporting. Raw materials cover fabrics, yarns and trims. *HiFashion* is suitable for fashion industry branch locations. Requirements: 128K, PC-DOS, MS-DOS. Skill level: Novice. Hotline: 534 0383. Price: $2,995.

**RS/1**
Digital Equipment
Railway St,
Chatswood, NSW 2087
02 412 5252
*RS/1* is a full implementation on the Professional of RS/1 PLUS, previously available only on the far larger PDP-11 and VAX machines. RS/1 is an integrated package combining data analysis, graphics, curve fitting, statistical analysis, analytic model building and programming that is designed especially for scientists and engineers. *RS/1* is a standard in many pharmaceutical, chemical, electronics, biotechnology and manufacturing environments. Requirements: Professional 350, hard disk, P/OS. Skill level: Novice. Price: $3,215.

**STAT PAC**
Microbyte
PO Box 34,
Hawthorne, Vic 3122
03 331 1382
*Stat Pac* meets the needs of statistical researchers. It has data management and analysis. Users of mainframe packages; SAS (Statistical Analysis System), and SPSS (Statistical Analysis for the Social Sciences) should feel comfortable using *Stat Pac*. *Stat Pac* is a batch system that handles 5,000 cases, and 255 columns of variables. Tabular results cannot be viewed on screen – all analytical output is sent to the printer. Requirements: 128K, 2 disk drives, PC-DOS. Skill: Intermediate to Technical. Price: $637

## Graphics

**BUSINESS GRAPHICS SYSTEM**
JBA Micro
8 Help St
Chatswood, NSW 2067
02 411 1144
The *Business Graphics System* gives users 8 colours and 7 fonts to create specialized types of charts for output to screen, plotter or printer using simple menu-and-prompt-driven programs. Besides on-screen forms, data can be graphed from a spreadsheet file or from any numeric data file created through an ASCII text editor. Requirements: MS-DOS, 128K RAM or CP/M with 48K free of CP/M. MS-DOS, CP/M. Skill level: Intermediate. Price: $360.



**GRAPHWRITER**
Sourceware
4/73 Albert Ave
Chatswood, NSW 2067
02 411 5711
*Graphwriter* gives the advanced business graphics user flexibility to change and pre-set style characteristics, for example, colour, location, size, font and format. It provides special plotting for glossy paper or transparencies and has 24 different programs capable of hundreds of graphing formats. Requirements: 128K memory, 2 double-sided disk drives, colour monitor, pen plotter, ASYNC comms adaptor, RS232 cable, PC-DOS. Skill level: Novice. Price: $1,095.

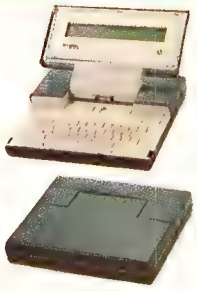
**MAPS/PRO GRAPHICS**
Digital Equipment
Railway St
Chatswood, NSW 2087
02 412 5252

# An open and shut case for the Magnum.

If the 16 bit computer you're considering weighs less than 4kg, fits inside the average briefcase and incorporates, at no extra cost, the software the executive needs most, then you can only be considering the Dulmont Magnum.

The truly portable 16 bit computer, designed and manufactured right here in Australia, with all the power you'll ever need, anywhere in the world.

Yet the Magnum won't cost you the earth, is incredibly easy to use, and includes software like a Planner/ Diary, Telephone/ Address Book, Spreadsheet, Word Processor and Basic, all at no extra cost!



So, before you spend big money on a deskbound system from overseas, call Dulmont on **(02) 477 6444** for more information or an obligation free demonstration.

We'll show you how easily the Magnum can improve and simplify your business.

After all, it is an open and shut case.

## The Dulmont Magnum.

The Macro Portable with the Micro Price.

*Weight:* Around 4kg. *Size:* 305mm x 280mm x 51mm (12" x 11" x 2"). *Memory:* Up to 256K Bytes battery backed RAM; 128K Bytes internal ROM. *Keyboard:* Full sized QWERTY. *Power:* Battery (up to 10 hours) or Mains. *Optional:* Expansion Box of the same size providing up to 256K Bytes RAM and two 5¼" floppy disk drives with 720K Bytes total storage capacity.

DUL 509 THE WORKS

Manufactured by Dulmont Electronic Systems Pty. Limited (Inc. in N.S.W.). P.O. Box 1668, Hornsby Northgate, N.S.W. Australia 2077.

*MAPS/PRO* output to the screen can be in monochrome or colour. Black and white hardcopy output to a supported printer can be obtained using the print screen facility. The package operates as either a stand-alone graphics facility or as an output support package for *MAPS/PRO* Financial Modelling. Users can create text slides, line graphs and bar charts specific to individual requirements. Requirements: Professional 350 hard disk system configuration, P/OS. Skill level: Novice. Price: $340.

**MICROCAD**
Sourceware
4/73 Albert Ave
Chatswood, NSW 2067
02 411 5711
*Microcad* is a CADCAM design tool specially for the IBM-PC. Microcad gives a 3-D graphics system and design plus scaling, rotating, translating, appending and viewing of images in perspective, plus hidden line removal. Microcad cannot create multi-layered drawing, but can overlay objects. Requirements: 64K RAM, 2 disk drives, PC-DOS. Skill level: Intermediate. Price: $995 plus $285 for rotatable character set.

**MICROSOFT CHART (APPLE MACINTOSH)**
Microsoft
PO Box 98
Terrey Hills, NSW 2084
02 450 2522
*Microsoft Chart* for Mac is a 2D graphics program that enables data to be entered, edited and formatted directly in windows on the screen. *Chart* presents the user with a "gallery" of available business charts – bar, line, pie, scatter, etc – that can be used to quickly visualize chosen data. *Chart* may be customized by using the Mouse to select formats or options, or move selected objects on the chart to alternate positions. Requirements: Apple Mac, 1 disk drive. Skill level: Novice. Price: $195.

**MICROSOFT CHART (IBM PC)**
Microsoft
PO Box 98
Terrey Hills, NSW 2084
02 450 2522
*Microsoft Chart* is a business graphics program that enables graphics data to be entered, edited and formatted directly in windows on the screen. *Chart* presents the user with a "gallery" of available business charts – bar, line, pie, scatter, etc – that can be used to quickly visualize chosen data. The user also has complete control of the font, type size, position, and other characteristics of any text (headings, axis, titles, etc) for a given chart. Requirements: 128K, 1 disk drive, PC-DOS. Skill level: Intermediate. Price: Available in May.

**MOUSEPAINT**
Apple Computers
37 Waterloo Rd
North Ryde, NSW 2113
02 888 5888
*MousePaint* software uses the Apple Mouse II to design charts, diagrams, freehand drawings and other visual aids for reports and presentations. Users can insert text in a drawing and can choose from a variety of character fonts and fill patterns. *MousePaint* simulates bit map graphics to support the Apple II's high resolution capabilities. Requirements: Apple II, mouse. Skill level: Novice. Price: $245.

**100/GRAPHICS (HP150)**
Hewlett-Packard
31-41 Joseph St
Blackburn, Vic 3130
03 895 2895
*100/Graphics* can easily illustrate information from a Condor 20 database or a VisiCalc spreadsheet and plot text for presentations. The package provides bar charts, pie charts, line charts and text charts, with a variety of character sizes and fonts. A line drawing feature is provided in all chart types. The line can be drawn with exceptional resolution (the HP-150 screen has almost 200,000 pixels for graphics). Requirements: 256k memory, MS-DOS, on the HP150. Skill level: Novice. Hotline: 008 03 3055. Price: $475.

**PICTURE PERFECT**
Hewlett-Packard
31-41 Joseph St
Blackburn, Vic 3130
03 895 2895
*Picture Perfect* by Computer Support Corporation is a graphics software package that utilizes the touch menus to define vertical bar, horizontal bar, pie or line charts. Multiple charts can be combined on a single page. Bar charts can be basic, stacked, clustered and overlapped. There can be up to 24 clusters and up to 8 bars per stack or cluster. 55 shading patterns are available. Line charts provide up to 8 lines of 99 data points at a time and the axes are available in linear, log/log and semi-log scales. Requirements: 256k memory and suitable graphics printer or plotter. MS-DOS, on the HP150 flexible or hard disk versions. Skill level: Intermediate. Hotline: 008 03 3055. Price: $469.

## File management (database)

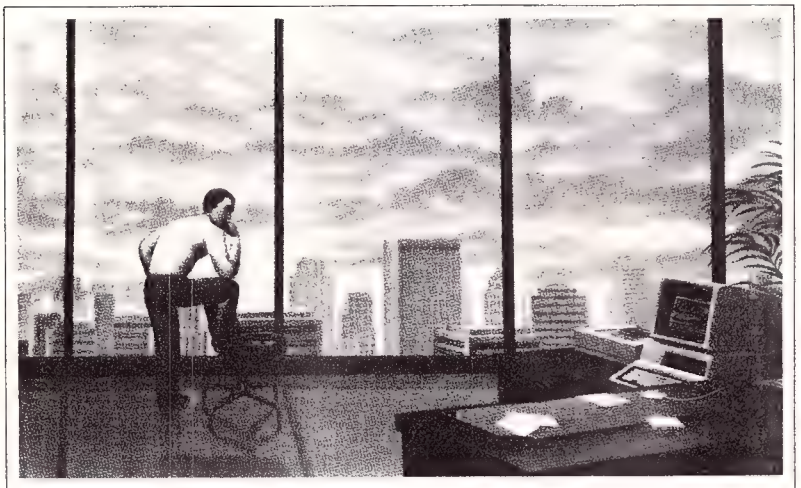
**APPLEFILE III**
Apple Computers
37 Waterloo St,
North Ryde NSW 2113
02 888 5888
*AppleFile* lets users store, arrange, review, and print records in files up to 16MB. It is suitable for professional data files. Users can scan thousands of records by listing a summary portion of the record, and can re-define files without re-typing data. *AppleFile* will print in rows and columns and summarises totals, averages and counts. *AppleFile* has 8 order types, and 80 fields record, and up to 30,000 records of 100 characters each. Requirements: Apple III. Skill: Novice. Price: $395.

**CONDOR I**
Digital Equipment
Railway St,
Chatswood, NSW 2067
02 412 5252
*Condor* is a menu-driven relational database product intended for novice users who want to develop applications quickly and with little training. Features include user-designed data entry forms, data sets can be sorted by up to 32 fields,

IMAGINEERING™

# INTRODUCES VISI ON.™

## (Just when you and your computer were about to call it quits, help arrives.)



*There's a problem here. And it's not you. The personal computer promised to take the work out of work. It would do your job faster, make life easier, send you home happier.*

*It would do the heavy lifting. You would do the heavy thinking.*

*Alas, reality fell short of the dream.*

*For every solution wrung out of it, the personal computer created more problems.*

*Each software program took days, weeks (sometimes classes) to learn. There was no way for individual programs to talk to each other. No way to take data from here and transfer it to there.*

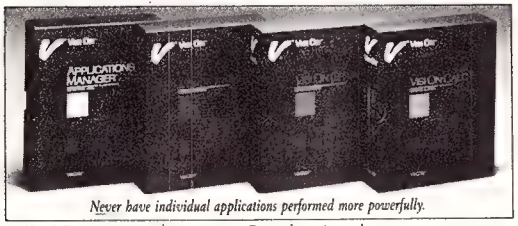
*The computer refused to do things the way you like to do them. Refused to juggle lots of jobs at once. Refused to move swiftly from project to project.*

*Refused, even, to understand simple English.*

*The machine that promised to be your partner in a new era of productivity has behaved like a renegade two-year-old.*

## VISI ON—Suddenly, your personal computer becomes the partner you always dreamed it would be.

Visi On is a completely new generation of business software that does what no computer or program has ever done It makes the personal computer work harder, work easier, and work more sensibly




*Never have individual applications performed more powerfully.*

How? By *managing* the computer. By making it work the way *you* are accustomed to working.

Think of Visi On as a "boss" who instructs the computer on how to deal with the specific applications you want to work with: Visi On Calc,™ an electronic spreadsheet; Visi On Word,™ word processing, Visi On Graph,™ business graphics, and Visi On Query,™ relational database. Since all these applications work for the same boss, they all work the same way. Learn to use one, and you've essentially learned to use them all

Working under Visi On, each application becomes the best you ever worked with no matter which one you choose

Moreover, the strength of each application is boosted when they are *combined*

Indeed, Visi On demonstrates its true genius whenever you want to do a number of things at once

Going from a database to a spreadsheet to business graphics on a computer before now required rifling through a stack of different program disks and a bookcase full of instruction books.

But with Visi On, *each application can talk to the other* You're free to transfer words, numbers, formulas, even entire charts, from one place to another. Noodle, fix, futz; change your mind to your heart's content

No fumbling floppy disks. No forgetting instructions

Just analyze, experiment, refine, decide, and move forward

### If it were any friendlier, it would be illegal.

Applications appear on the screen as windows, representing workspaces

To open a window, you point a hand-held pointer called a "mouse

It's simple to learn, and even easier to use As you slide the mouse along your desk, the cursor follows on the screen. Two buttons on the mouse control your options. There are only a few basic commands, and they remain in plain sight at all times.

Should you see a problem, point your mouse at it. A special Visi On Help window opens on the screen. Having anticipated the question you were going to ask, Help starts off with the most probable answer.

There. Your computer has become a sweetheart: as cooperative, as productive as it promised it could be.

Freeing you to think about lunch

### Reviewed, tested, and heralded, VISI ON is now something you can *have.*

Yes, Visi On works on the IBM® XT personal computer. Visi On works on almost any computer, including the one you now own and aren't speaking to.

Visi On is also open-ended, so you're free to add, as needs arise, new applications. Ours or others. Including a new communications system which will soon allow you to transfer information not only between applications, but between other personal computers, local networks, outside databases, and your company's mainframe computer.

See your Authorized VisiCorp™ Dealer or sales rep for a hands-on demonstration and information on our comprehensive support program.

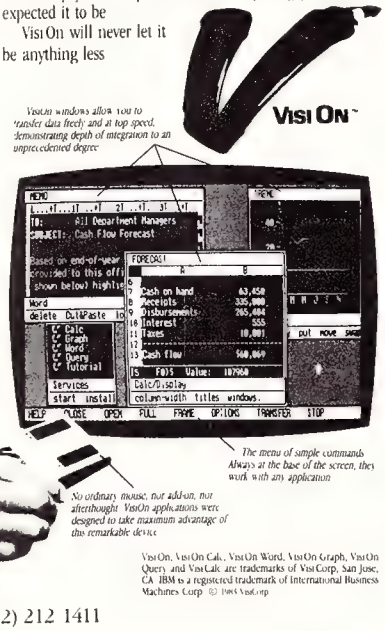
And note one more way we ensure that your investment is never at risk: Receive your original purchase price (minus a new materials charge) for VisiCorp software you now have, in trade for its Visi On equivalent.

You see, you're buying Visi On from VisiCorp, the leading maker of business software. No one makes more useful, more powerful software, either (just ask over a million people now using VisiCalc®).

And no one supports it better.

Finally, your computer will be everything you always expected it to be

Visi On will never let it be anything less


VISI ON™
Visi On windows allow you to transfer data freely and at top speed, demonstrating depth of integration to an unprecedented degree
MEMO
TO: All Department Managers
SUBJECT: Cash Flow Forecast
FORECAST
Cash on hand 63,450
Receipts 335,000
Disbursements 265,404
Interest 555
Taxes 10,001
Cash Flow 560,069
Word
delete Cut Paste
Calc
Graph
Word
Query
Tutorial
Services
start install
HELP CLOSE OPEN FULL FRAME OPTIONS TRANSFER STOP
The menu of simple commands. Always at the base of the screen, they work with any application
No ordinary mouse, but add-on, but afterthought VisiOn applications were designed to take maximum advantage of this remarkable device

Visi On, Visi On Calc, Visi On Word, Visi On Graph, Visi On Query, and VisiCalc are trademarks of VisiCorp, San Jose, CA. IBM is a registered trademark of International Business Machines Corp. © 1985 VisiCorp

IMAGINEERING P.O. BOX 558 BROADWAY 2007 TEL: (02) 212 1411

Visi On is available now from Myer and Grace Bros Business Centres, A.C.I. Computer Services and all fine IBM Microcomputer Dealers.

able to both read and write standard ASCII files, columnar report format including totals and subtotals, statistical analysis to the extent of minimum, maximum, average and total. It is compatible with Condor 3. It won't accept indexing commands. Requirements: Rainbow computer and printer, CP/M. Skill level: Novice. Price: $485.

**CONDOR 3 DATABASE MANAGER**
Digital Equipment
Railway St,
Chatswood, NSW 2067
02 412 5252
*Condor 3* is a relational database manager intended for users who will want to organise large amounts of data, update it quickly and then analyze it in different ways. Once data is entered it can be reorganized, changed, viewed or printed in part or in whole as reports or as lists. Accordingly there is no need to keep may files with often redundant data. Requirements: Rainbow systems or a Decmate II system with the optional CP/M card. Skill level: Intermediate. Price: $1,100.

**DATATRIEVE**
Digital Equipment
Railway St,
Chatswood, NSW 2087
02 412 5252
*Datatrieve* provides an interactive Application Design Tool (ADT) to assist the user in creating domain and definition records. ADT will create an indirect command file that is then processed to do the actual update of the *Datatrieve* Data Dictionary. *Datatrieve* is an interactive query, report and data maintenance system designed for ease of use. Requirements: Professional 350 hard disk system, P/OS. Skill level: Novice. Price: $840.

**DATATRIEVE LAYERED APPLICATION FACILITY**
Digital Equipment
Railway St,
Chatswood, NSW 2087
02 412 5781
The *Datatrieve Layered Application Facility* (LAF) enables developers using Datatrieve to create Datatrieve applications for the Professional 350 System. LAF allows a user to integrate a *Datatrieve* application with the *Datatrieve* task image and message file, so that an end-user can install the application and select it from a P/OS menu. Requirements: Professional 350 hard disk system configuration, P/OS. Skill level: Intermediate to technical. Price: $840.

**DATAFLEX 2**
Intelligence
204 Clarence St
Sydney, NSW 2000
02 267 1711
*Dataflex 2.0* is a fast (complied Pascal), multi-user relational data base management system. *Dataflex* offers transportable applications development which supports multi-user operation on micro networks. *Dataflex* is made up of a menu system, on-line multi-key ISAM, data processing features, and an applications generator. Nine indexes for each file (on 16 bit systems) means, for example, that users can find records by name, account number, account status, or any other record field. *Dataflex* has its own image or screen generator, report generator, and AutoDef (which automatically creates a file definition, database file and key indexes from a screen image). Requirements: 600K disk storage, 52K TPA (8 bit), 100K TPA (16 bit), CRT with cursor addressing. Skill: Novice to technical. Price: 8 bit, $950 single, $1,200 multi-user; 16 bit, $1,200 single, $1,800 multi-user.

**DMS DELTA V 1.2**
Intelligence
204 Clarence St
Sydney, NSW 2000
02 267 1711
*DMS Delta* is an information system for the first-time user, manager, or business person who needs information, but who doesn't want to learn programming. *Delta* is menu-driven, but users can define their own menus. Keystroke combinations can be remembered as a menu option. This means that user-developed complicated sorts and selections and reports work with a single keystroke. Mail-merge and letter writer are included. Limits are 32,000 records, with 90 fields a file, and 8 subfiles a file, and 250,000 sub records a main record. Requirements: 64K, CP/M, MSDOS. Skill: Novice to intermediate. Price: $950.

**KNOWLEDGEMAN**
PO Box 34
Hawthrown, Vic 3122
03 818 7929
*Knowledge Man* provides database, query language and spreadsheet in one package. The database starts where dBase leaves off. The query language is English. The standard for relational systems is Structured Query Language/Data Systems (SQL/DS), previously available only on mainframes. *K-Man* is the micro version of SQL/DS and faithfully follows the SQL relational standard in syntax and functionality. ASC11, BASIC data statement and DIF formats are supported. dBase II readable files are also supported. Requirements: 192K 5MB HD, PC-DOS, CP/M-86. Skill level: Intermediate. Price: $895.

**LIST MANAGER**
JBA Micro
8 Help St
Chatswood, NSW 2067
02 411 1144
*List Manager* gives control over the design and use of mailing lists and labels. It has many of the features of a database management system. It makes use of a new index file manager. Any mailing list file can have up to 3 index keys enabling efficient access to any record by a user. Mass mail letters can be generated with *List Manager*. Definition of the items in a mailing list are under complete user control; up to 14 fields can be defined and the user can select 3 of these for use as index keys. Tutor disk. Requirements: CP/M, 48K RAM, MS-DOS, PC-DOS,

# Introducing The Squirrel: a smart, small collector that stores and retrieves information.

Sharp introduces the truly portable personal computer. It weighs around 5kg. Slips into a standard briefcase. And works wherever you do.

It's called The Squirrel. But you may call it a godsend especially if you spend a lot of time away from your office.

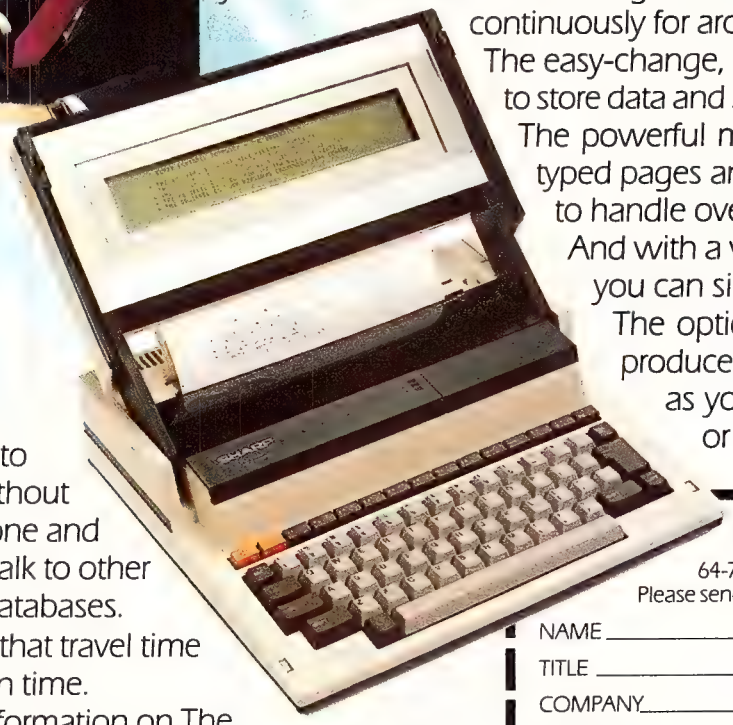
Wherever you are, just open the case, flip-up the screen, and you're in business. The rechargeable battery lets you work away continuously for around 8 hours.

The easy-change, bubble memory allows you to store data and swap programs in an instant.

The powerful memory remembers over 60 typed pages and storage can be expanded to handle over 500.

And with a word processing package you can silently type a letter or memo.

The optional integrated printer produces as many neatly typed copies as you need for mailing or meetings.



If you want to communicate without paper, grab a phone and The Squirrel can talk to other computers and databases.

It all means that travel time is no longer down time.

For more information on The Squirrel and the many software packages available, call the Sharp office nearest you for the location of your Squirrel dealer.

TO: Computer and Systems Division
Sharp Corporation of Australia
64-72 Seville Street, FAIRFIELD NSW 2165.
Please send me more information on The Squirrel.

NAME _____
TITLE _____
COMPANY _____
TELEPHONE _____
ADDRESS _____ TC
_____ POSTCODE _____

THE SQUIRREL **PC 5000**

SHARP®

**Simply the best in computers**

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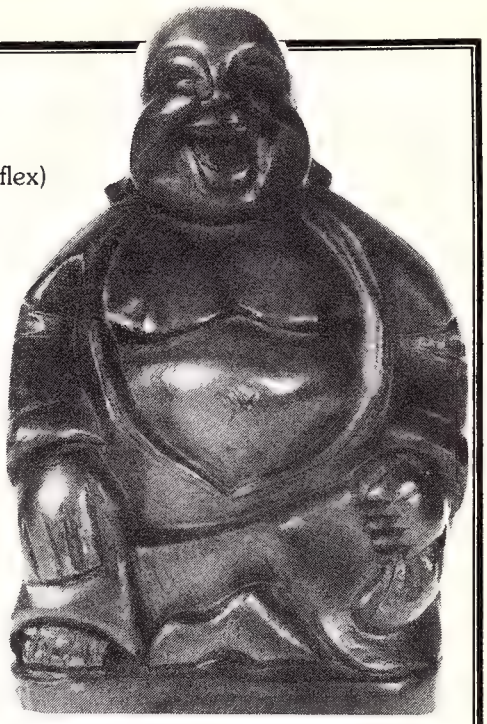
AP 8108

# "NINE TENTHS OF WISDOM

**. . . is being wise in time."**



**Intelligence (Aust.) Ltd** offers a whole range of time wise products (like Dataflex) for better and faster decision making.

**Intelligence (Aust.) Ltd** is a wholly owned Australian company specialising in decision support software on personal computers. Our range of software products includes database management, project control, financial modelling, communications graphics packages and PC RAM boards.

**Intelligence** provides consultancy and training courses consisting of lectures, discussions and practical sessions either at our offices or yours.

## DATAFLEX

A multiuser relation data base management system, ideal for those considering developing applications on single or networked computers.

DataFlex is a software tool for the development of high quality, easy to use on-line, data base oriented business applications in a minimum of time. The design of the system is possible because of the similar functional requirements of most business software. Business applications perform:

1) File maintenance 2) Transaction entry 3) Calculations and file update
4) Report generation 5) End of period procedures

These functions encompass the software requirements for all accounting, inventory, payroll, job costing, and other business information processing requirements, DataFlex does them all . . . on-line, interactively. It is a relational data-base system with a comprehensive library of application independant utilities designed to perform the five basic functions of business applications ALL WITH TWO PROGRAMS. For the programmer who wants to extend DATAFLEX further for unusual needs, the optional PASCAL Library Routines are available as a system option. The PASCAL Library includes the: DBMS, SCREEN-FORMS, PRINTED-FORMS, ISAM (B+) and numerous utilities. Also, the source for the DataFlex ENTER and REPORT Program is included with the PASCAL Library.

**SPECIFICATIONS:**

| | | | |
|---|---|---|---|
| Environment: | Processor: 8080, 8085, Z-80, 8088, 8086. | Open DBMS Files: | 6 average files (8 bit) 12 average files (16 bit) |
| Operating Systems: | CP/M, CP/M-86, MP/M-86, MS-DOS, ShareNet, PC-Net, DMS Hi-Net, Molecular N-Star, Televideo MMMost, Action DPC/OS, IBM "PC" w/Corvus, OSM Muse. | Fields per File: | 255 |
| | | Indexes per File: | 4 + One Temporary (8 bit)<br>10 + One Temporary (16 bit) |
| Purpose: | Applications Development | Fields per Index: | 4 (8 bit); 6 (16 bit) |
| Structure: | Relational Data Base with Data Independent Utilities. | Maximum Files Size: | 8 Megabytes (current O/S limitation) |
| | | Maximum Record Size: | 4K |
| DBMS Files: | 125 | Maximum Records: | 64,000 |
| | | Indexing: | B+ Multi-Level ISAM. |

## THE PC EXPRESS FROM INTELLIGENCE RESEARCH. THE BOARD THAT MAKES THE IBM PC GO THREE TIMES FASTER.

When added to an IBM computer it not only enhances memory but also enables the user to process data at speeds far surpassing those of which the machine was previously capable. The board upgrades an IBM PC to a real 16 bit computer and trebles its speed with the ultra-fast 10MHz, 8086 microprocessor. PC Express is supplied with on board Hi-Speed memory circuitry, allowing it to be expanded to 512K memory by the addition of any 64K or 256K RAM chips. PC Express has no effect on software other than to increase its running speed while switch and software functions allow the board to be disabled when accelleration is not desired. The performance of the PC Express expansion board is further enhanced by the use of RAM Disk, Disk Cache, and Background Printer software, all of which are supplied with each board. **Technical Specifications:** MPU: 9.54MHz, 8086. Maximum 512K on board memory Compatible 64K or 256K Dynamic RAM RAM Access time: maximum 150 nanoseconds 16 Bit wide memory with two parity Bits.

Other products include:

* MICROMODELLER and MODELLER — 16 the very best in microbased financial modelling languages.
* PERMASTER and MICROPLANNER, two of the most popular and powerful micro based project planning systems on the market.
* MICROLINKLINE a communications package that allows you to link micros to micros and micros to mainframes.
* MICROSUPERGRAPH a comprehensive business graphics package which links directly to MicroModeller, Supercalc, The Delta and other popular packages.
* CONTEXT MBA a combination of database, spreadsheet, graphics, communications, and wordprocessor all in one. A must for the Businessman with an IBM PC.
* DMS/DELTA. A true transactional database system with a your-choice record layout. Very comprehensive, very easy to use. IBM distributed product in the UK for the IBM PC.

Intelligence (AUST) Pty Ltd

## Dealer Enquiries Welcome

**Sydney:**
4th Floor, 204 Clarence Street,
Sydney N.S.W. 2000
Phone: (02) 267 1711
Telex: MNC AA25026

**Melbourne**
Suite 303, 620 St Kilda Rd
South Melbourne Vic 3004
Phone: (03) 51 1406

128k RAM. Skill level: Novice. Price: $295.

**R BASE SERIES 4000**
Imagineering
3/579 Harris St
Ultimo, NSW 2007
02 212 1411
The next evolution from dBase, R Base is a relational data management system that gives your PC mainframe power. It handles 400 fields a record and record sizes of up to 1,530 characters. *R Base* lets you inquire about the structure of your database. It has 40 related files per data base, and alterable command menus. The program provides English commands and full help functions and allows users to sort and select data on up to 10 criteria.dBASE 11 files can also be converted to R Base format. Requirements: 256K memory, 320K dual drives, MS-DOS or PC-DOS, available for HP180, HP120. Skill level: Novice. Price: On request.

**PFS FILE**
Imagineering
3/579 Harris St
Ultimo, NSW 2007
02 212 1411
*PFS File* works like a paper filing system without the paper. With *PFS File* your information is organised in forms you design yourself. With just a few keystrokes you can select for viewing only the information you need now. For example, you can choose all the people whose last name begins with C or all companies in Chicago. Then you can print these at the touch of a button. Or, you can print selected items, such as names and addresses for a mailing list, sorted alphabetically or by area code. Requirements: PC-DOS. Skill level: Novice. Price: $175.

**PERSONAL CARD FILE (HP150)**
Hewlett-Packard Australia
31-41 Joseph St,
Blackburn Vic 3130
03 895 2895
*Personal Card File* works and looks like an electronic cardfile to keep track of information. It takes only minutes to learn. The form is typed onto the screen exactly as you require it. The "cards" are selected by touching the card name on the screen. Card File searches and sorts on any field. Cards can be added and deleted. It has full data interchange to other data bases, mailmerge and Basic. ASCII text file transfer to Wordstar. Maximum of 500 cards, each of 1600 characters. Requirements: 256K memory (standard on HP-150), MS-DOS. Skill level: Novice. Hotline: 008 033 055. Price $237.

## Financial

**MAPS/PRO FINANCIAL MODELLING**
Digital Equipment
Railway St
Chatswood, NSW 2087
02 412 5252
*MAPS/Pro Financial Modelling* provides a distributed financial planning environment for managers and financial departments. Implemented as a stand-alone system it performs planning and analytic functions not found in standard spreadsheet programs. Requirements: Any valid Professional 350 hard disk system configuration, P/OS. Skill level: Novice to intermediate. Price: $2,050.

**MODELLER-16**
Intelligence
204 Clarence St
Sydney, NSW 2000
02 267 1711, 03 51 1406
*Modeller-16* is a micro based financial modelling language which is ideally suited to the applications that require consolidation, report generation, and a fully automated approach. *Modeller-16* is the upgrade to the 500-user Micromodeller. The system offers full conditional logic. *Modeller-16* may be fully automated using the "Gen" facility which helps to generate user defined calculations, file manipulation, and report generation by answering previously defined questions. Requirements: 128K, MS-DOS or LISA DOS 8088, 8086. Skill level: Intermediate to technical. Price: $1,800.

**MONEY DECISIONS I AND II**
Digital Equipment
Railway St
Chatswood, NSW 2087
02 412 5252
Automated, menu-driven problem-solver with over 70 different financial solutions available. All solutions are pre-programmed, eliminating the need for programming knowledge. Volumes I and II are mutually exclusive and may be purchased separately. Volume I provides solutions to 34 financial problems covering principally investments and loans. Volume II provides a further 36 solutions in the areas of valuing bonds and shares, production costing, inventory control (EOQ, etc) and also some statistical techniques such as regression and Bayesian decision analysis. Requirements: MBasic interpreter is required. Rainbow with 128KB. Decmate II with CP/M softcard, CP/M. Skill level: Novice. Price: Vol I $380, Vol II $390.

**TARGET FINANCIAL MODELLING**
Digital Equipment
Railway St
Chatswood, NSW 2087
02 412 5252
This (usually financial) model can be built using the spreadsheet format or the model may be built as a series of numbered commands. *Target Financial Modelling* will store up to 24 complete report formats so that different reports can be readily prepared from the same raw data. TFM is a forecasting package originally developed for use on mainframe computers. The results are dis-

# Get your hands on some extra time

Your personal computer could be handling its entire workload in a fraction of the time it now takes. All you need is the time saver — the remarkable Concurrent CP/M™ operating system from Digital Research.

Concurrent CP/M is the only personal computer operating system that lets you run up to four separate jobs simultaneously. You can start a single program just as you do now. But when you want to, just touch a key and you get a fresh screen to work with . . . while your original program continues to run. That means you don't have to kill time while your PC runs payroll. Or quit your spreadsheet to answer questions about stock. And you can return to your first project whenever you're ready. Each of your four programs is only a keystroke away at all times.

With the new true window facility built into Concurrent CP/M, you can keep track of all of these, on screen, simply and easily.

Concurrent CP/M makes it so natural to work with your PC; you'll use it to do more work . . . with time to spare.

Get a personal demonstration of Concurrent CP/M with windows at your local computer dealer today.

## Concurrent CP/M™

### With Windows

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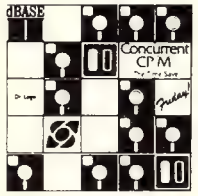


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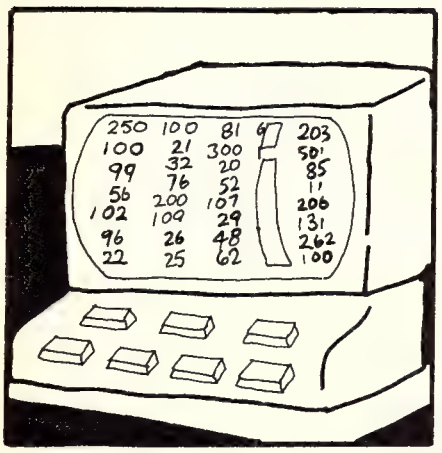
played on screen in a spreadsheet format but can be printed with enhancements as presentation quality reports. Models can be linked. What if analysis is formalized and modification is simple? Requirements: Rainbow, any valid system configuration Decmate II, optional CP/M card, CP/M. Skill level: Novice. Price: $555.

## Spreadsheets



**MICROSOFT MULTIPLAN (APPLE MACINTOSH)**
Microsoft
PO Box 98
Terrey Hills, NSW 2084
02 450 2522
This gives additional enhancements to earlier MP versions. An "undo" command allows reversal of the last change to the spreadsheet. Recalculation is faster on the Macintosh, and "smarter" – recalculation will pause so the user experiences no delay while working. The user can cut and paste between spreadsheets, and to Microsoft Chart for presentation quality business graphics. *Multiplan* is compatible with Microsoft's Sylk format; it is easy to transfer spreadsheets or data from *Multiplan* onto other machines. Requirements: Applemac, 1 disk drive. Skill level: Novice. Price: $315.

**PEACHCALC**
JBA Micro
8 Help St
Chatswood, NSW 2067
02 411 1144
*PeachCalc* is an electronic spreadsheet system that has an array of prompts and help commands to guide the user through all levels and options of the system. Data from the Peachtree Software accounting products can be integrated into *PeachCalc* automatically using Access Pak. Information from a spreadsheet can be inserted in a PeachText document and/or graphed using the Business Graphics System. *PeachCalc* provides the ability to merge worksheets or to repeat any portion of a worksheet. Requirements: CP/M, 44k RAM, MS-DOS, PC-DOS, 128k RAM. Skill level: Novice. Price: $175.

**SUPERCALC 3**
Imagineering
3/579 Harris St
Ultimo, NSW 2007
02 212 1411
*Supercalc 3* is an integrated software package which includes productivity spreadsheet, data management, text editing and letter writing, graphics and SuperData interchange. It interfaces with Lotus 1-2-3 (DIF only) D Base II, Visicalc, Multiplan (DIF only). Sorcim's Integration means 1 disk, with no disk swapping. *Supercalc* intelligently uses up to 640k memory, and includes advanced replicate/copy functions, enhanced colour usage, and flexible execute functions which are transferable to other worksheets. Requirements: 1 disk drive, 98k memory, PC-DOS, MS-DOS (TI PRO). Skill level: Novice. Price: $445.

**VISICALC ADVANCED (APPLE IIE)**
Imagineering
3/579 Harris St
Ultimo, NSW 2007
02 212 1411
*Visicalc Advanced* for the Apple IIe offers all the Visicalc features plus variable column widths and many new formatting options. It also has a replicate command, and control over format and data type of individual cells, including hidden or protected data. Requirements: 128k, 2 disk drives, 80 column display. Skill: Intermediate. Price: $495.

## Communications

**DSN/LINK (HP150)**
Hewlett-Packard
31-41 Joseph St
Blackburn, Vic 3130
03 895 2895
*BSN/LINK* provides easy transfer of information between the HP-150 and other computers, either mainframes or PC's. A special command language is provided for users to tailor the way they interface with host computer applications. Information received from these systems can be logged directly to a file or to a printer. Requirements: For HP150 – 256k memory, and MS-DOS, or CP/M for HP120. Skill level: Technical for first time set up, then novice. Hotline: 008 03 3055. Price: $317.

**TELECOMMUNICATIONS**
JBA Micro
8 Help St
Chatswood, NSW 2067
02 411 1144
*Telecommunications* is a software package providing capabilities previously limited to much larger computer systems. Users of PeachText can call *Telecommunications* directly from the PeachText menu. The package allows the automatic sending and receiving of disk files and documents. It operates in originate or answer modes, full or half-duplex. Tutor disk. Requirements: CP/M (48k RAM), MS-DOS, PC-DOS (128k RAM). Skill level: Novice. Price: $175.

**3COM ETHERNET**
Imagineering
3/579 Harris St
Ultimo, NSW 2007
02 212 1411
*Ethernet* is a family of hardware and software that lets up to 256 individual IBM-PCs communicate and share information and printer time. *Ethernet* gets into shared software faster than an

individual user can get into floppy disk. It emulates 2-way and concurrent serving. It has 4 parts: Etherlink, which connects the PC with the plug-in board; Ethershare, the software that lets you use the hard disk on the network; Ethermail, which gives secure 2-way communications (or electronic mail); Etherprint, which lets a number of PCs share a common printer. Requirements: IBM-PC. Price: Link Card $1,547, per PC. Software cost is shared by the network – each unit, $895 (Etherprint, mail, and share). Cable is included in the price.

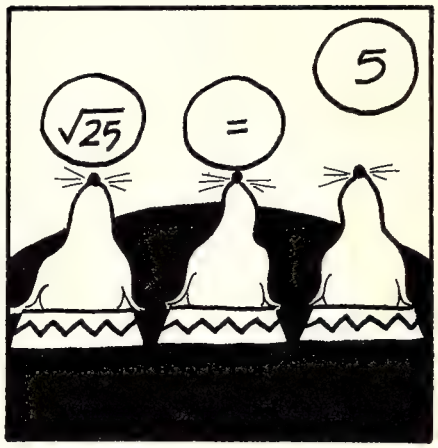
**POLY-XFR COMMUNICATIONS**
Digital Equipment
Railway St
Chatswood, NSW 2087
02 412 5252
The *Poly-XFR Communications* package developed by Polygon Associates features the ability to transfer both binary and AASCII files between the personal computer and a host system. Users can transfer files, store and retrieve files, use host peripherals and act as a terminal to the host across a wide variety of Digital equipment. Requirements: A VT-180 or Rainbow configuration; or a Decmate II with the optional CP/M card. Skill level: Intermediate. Price: $335.

## Accounting

**BAR CODE INVOICE**
Systemedica
Biomedical Engineering and Computing
214 Victoria Ave
Chatswood, NSW 2067
02 411 2832
Faster invoicing is what you get with Systemedica's bar code (Code 39) printed on each invoice before posting. When the invoice is returned for payment, the operator waves the Systemedica bar code wand across the invoice. The account name or number specifications immediately appear on the screen. It speeds processing, reduces operator fatigue, eliminates key errors, and lowers the risk of repetition strain-type diseases. It can be interfaced with larger accounting systems. Requirements: MS-DOS, PC-DOS. Skill: Novice. Price: On application, as this is totally dependent on interface requirements.

**BPI (APPLE III)**
Apple Computers
37 Waterloo Rd
North Ryde, NSW 2113
*BPI* general accounting for the Apple III is designed for small and medium-sized businesses and shares all the basic functions of the Lisa version. This version takes advantage of the storage capacity available with hard-disk systems. *BPI* for the Apple III also works with Catalyst (tm), an interpreter switcher developed by Quark Engineering for Apple's Profile. Requirements: 256k Apple III and hard disk. Skill level: Novice. Price: $495 for each unit – accounts receivable, accounts payable and general accounting.

**BUSINESS PACK 1**
Attache Software Australia
275 Alfred St
North Sydney, NSW 2060
02 929 8700




*Business Pack 1* provides accounts receivable (DRS), invoicing/sales analysis and stock inventory control. It comes packaged in an attaché case with everything needed to operate the system. Accounts receivable also includes brought FWD and open item accounts in the same ledger, forward dated and automatic transactions, highlight reporting, full audit trail, plus accounting and management reports. Invoicing uses accounting, pricing, discount and descriptive information from debtors and stock files. Inventory control reports include stock status, stock movement, sales, stocktake, price lists, and integrates with debtors and inventory. Requirements: 128k, MS-DOS, PC-DOS. Skill level: Novice. Price: $1,595.

**BUSINESS PACK II**
Attache Software Australia
275 Alfred St
North Sydney, NSW 2060
02 929 8700
This is an integrated package that includes Creditors and General Ledger. Installation support is offered by Deloitte Haskins and Sells, Coopers and Lybrand, Arthur Anderson, and Mann, Judd and Co. Creditors allows various selections of vouchers to be paid, and generates reports showing open

Attaché Business software that carries you far into the future. Phone: (02) 929 8700

voucher cash requirements, cheques paid, and expense analysis. Requirements: 128K, MS-DOS. PC-DOS. Skill level: Novice. Price: $1295.

**HIFINANCE**
HiSoft
8 Alma Rd
St Kilda, Vic 3182
03 534 0383
*HiFinance* suits small business applications. It is a fully integrated program. Debtors/invoicing, creditors, inventory and general ledger modules are all on the one disk. For example, entering a debtor's invoice will automatically adjust the debtors, the stock on hand and the general ledger sales and cost of sale accounts. *HiFinance* software has been developed within Australia and performs to Australian and New Zealand accounting standards. Requirements: 128K, 2 disk drives, PC-DOS, MS-DOS. Skill level: Novice. Hotline: 534 0383. Price: $1,750.

**HITRUST**
HiSoft
8 Alma Rd
St Kilda, Vic 3182
03 534 0383
*HiTrust* provides legal firms with a trust accounting system which meets statutory and Law Institute requirements. The system allows for an unlimited number of client files and also caters for general accounting. It can list accounts outstanding over 30, 60 and 90 days. Automatic cheque or receipt printing and generation of pay-in slips are also part of the system. HiTrust can provide a print-out of all types of transaction statistics. Reports can be generated by file number, solicitor or partner code, client name or type of business. The system has a complete mortgage register and a series and investment register with multiple investments per file. HiTrust suits offices of between 2 and 10 Free earners. Requirements: 128K, PC-DOS or MS-DOS. Skill level: Novice. Hotline 534 0383. Price: $2,995.

**PEACHTREE BASIC ACCOUNTING SYSTEMS (PBAS)**
JBA Micro
8 Help St
Chatswood, NSW 2067
02 411 1144
*PBAS* consists of 5 linked packages – general ledger; accounts payable; accounts receivable; stock control; and sales invoicing. With the exception of sales invoicing, each of these applications can be operated independently. PBAS integrates with Office Productivity products (POPS) through the use of Access Pak. Period end processing automatically creates backup copies of the files. Tutor disk. Requirements: 128K, CP/M (50k free of CP/M), MS-DOS, PC-DOS. Skill level: Intermediate. Price: $3,620. Modules are available separately: general ledger, accounts receivable, accounts payable, stock control and sales invoice at $724 each.

## Project management

**HARVARD PROJECT MANAGER**
Sourceware
4/73 Albert Ave
Chatswood, NSW 2067
02 411 5711
*Harvard Project Manager* has graphical representation and offers calculation of critical path and 'slack'. It also gives project tracking and what-if calculation. It can define vacations, length of work day, week, etc, to enable users to work with real dates. It provides Critical Path Method (CPM) using program evaluation and review technique (PERT). It gives the ability to enter extensive detail about all nodes, paths, projects and subprojects for project managers. Tutor disk. Requirements: 128K of memory, 2 double-sided diskette drives or 1 double-sided diskette drive and a hard

disk drive, PC-DOS or MS-DOS. Skill level: Novice. Price: $649.

**MICROPLANNER**
Intelligence
204 Clarence St
Sydney, NSW 2000
02 267 1711
*Microplanner* is a project management tool which uses PERT to give time analysis, resource levelling, and network plots. Users may edit or build the network on the screen. Results can be stored in one of 3 schedules, to be compared for progress reports. Selections and sorts let planners analyze and view their information in bar charts, histograms, and listings. Microplanner handles up to 4,000 activities with over 6 calendars per project, and 35 resources. Requirements: 256k. Serial port. Two double-sided drives, or hard disc on Apple III. UCSD-p. Skill: Novice. Price: $2,500.

**PLANTRAC**
Intelligence
204 Clarence St
Sydney, NSW 2000
02 267 1711

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4. Judge's decision is final and no correspondence will be entered into.
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6. Residents of South Australia are not eligible to enter.
7. The winner will be advised by mail and announced in the issue of Today's Computers coverdated July.
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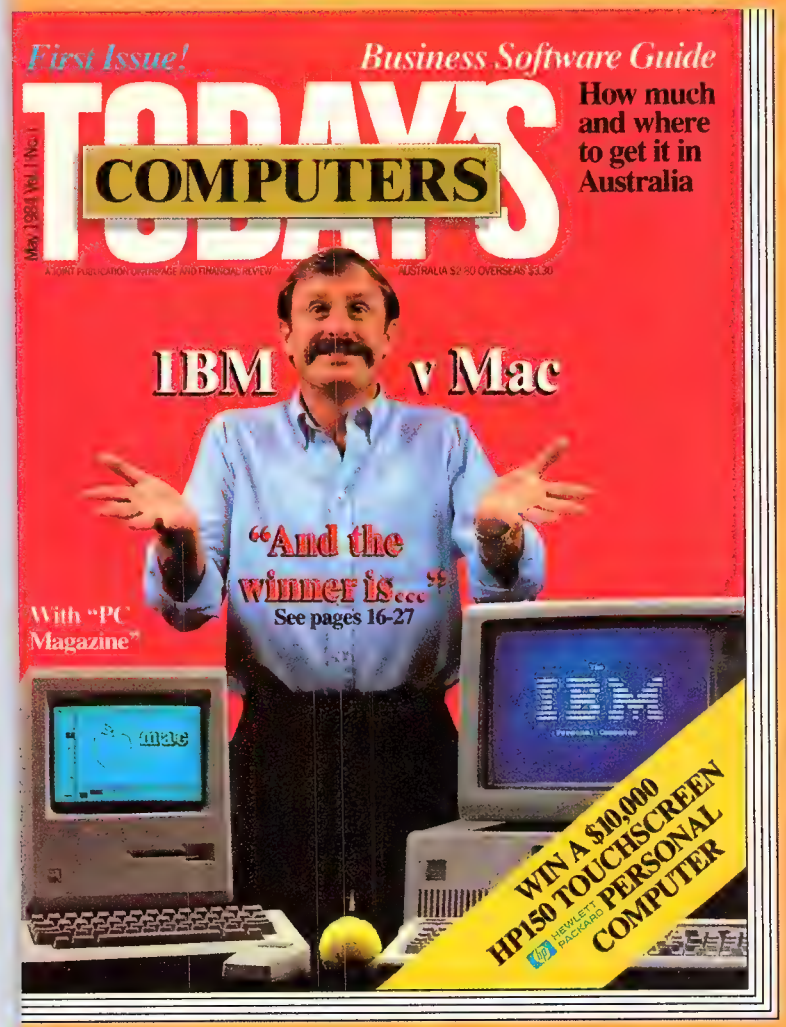


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*Plantrac* is a PERT package which gives up to 12,000 activities. These activities can be time analyzed, resource levelled, cost analyzed, and then plotted on printers or plotters. Plantrac is menu-driven and uses subprojects to build networks. Different subprojects can be combined to create new networks. Report formats can be defined by the user. It uses activity on arrow; precedence or bar chart formats. Plantrac could be used effectively by planners now using mainframe or bureau services. Limits are 14,000 activities, and 40 resources a project. Requirements: 64k, 2 disk drives. MS-DOS, CP/M 2.2, PC-DOS, or TRS-DOS. Skill: Intermediate. Price: $4,250 plus $750 support yearly.

**TARGET TASK**
Digital Equipment
Railway St
Chatswood, NSW 2087
02 412 5252
*Target Task* displays Gantt charts in working days and expanded Gantt charts in calendar format. It calculates the inflection points on the time/cost curve and highlights these for closer study. The program can plan and control up to 350 tasks for a project. Models developed may be merged together. Management reports can be produced. The name stands for Total Administrative Schedule Keeper. This package is designed for use by engineers, consulants, architects, and other project managers. Requirements: Decmate II with the optional CP/M card. CP/M and Rainbow version on order. Skill level: Novice. Price: $560.

## Languages

**APL * PLUS 3.0**
Sourceware
4/73 Albert Ave
Chatswood, NSW 2067
02 411 5711
*APL* gives a full-screen editor and complete graphics capability for the advanced business graphics user. APL has 30 user-function keys and alternate representation of traditional APL symbols as English-like words. General features include complete APL implementation, APL language primitive functions, and operators present screen management features. Requirements: 192k, PC-DOS. Skill: Intermediate. Price: $1,280.

**MICROSOFT BASIC (APPLE MACINTOSH)**
Microsoft
PO Box 98
Terrey Hills, NSW 2084
02 450 2522
*Microsoft Basic* uses the Macintosh interface and gives the user up to three kinds of windows-entry, listing and output. Basic also provides many of the extended graphics capabilities of Microsoft's GW Basic and supports Macintosh's quickdraw routines. Microsoft Basic takes full advantage of the large direct addressing capability of the Macintosh's Motorola 68000 Microprocessor. As yet, there is no compiler support. Requirements: Apple Mac, 1 disk drive. Skill level: Novice. Price: $245.

**PRODOS (APPLE II)**
Apple Computers
37 Waterloo Rd
North Ryde, NSW 2113
02 888 5888
*ProDos* means that the 16,000 Apple II programs can run on the Apple III plus. *ProDos* Apple's new disk operating system for the Apple II family provides increased compatibility between Apple II and Apple III environments and the higher performance required for more sophisticated Apple II Applications. *ProDos* data files and data media are interchangeable between the Apple II and Apple III. DOS 3.3 files can be converted to work with *ProDos*-based applications. Requirements: Apple II/Apple III. Skill level: Dependent on use. Price: On request.

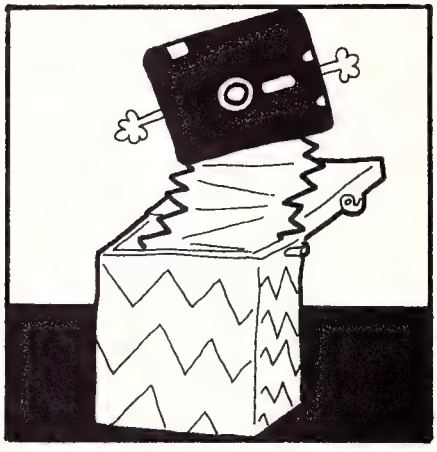
**R/M COBOL COMPILER**
Digital Equipment
Railway St
Chatswood, NSW 2087
02 412 5252
*R/M* is a high-level implementation of the ANSI 74 COBOL standard designed for the development and execution of COBOL business applications. The product comprises a compiler and an OBJECT TIME SYSTEM/LIBRARY. Requirements: 74k PC100 Rainbow, or 128k for CP/M2.0. Skill level: Intermediate to technical. Price: $840.

## DOS and utilities

**BAR CODE PRINT**
Systemedica
Biomedical Engineering and Computing
214 Victoria Ave
Chatswood, NSW 2067
02 411 2832
*Bar Code Print* saves operator time, and reduces key errors on such areas as materials handling, client file, book and video libraries, warehousing and laboratories. The software prints bar code (CODE 39) on low cost dot matrix printers. These labels can be read by Systemedica Bar Code Wands, thus reducing cost on materials handling or client file maintenance. Operators can print single labels according to specifications, or can batch print sequential labels. Requirements: CP/M 80, MS-DOS, PC-DOS. 64K. Price: $250.

**CONCURRENT CP/M WITH WINDOWS V.3.1**
Arcom Pacific
252 Abbotfords Rd, Mayne
Brisbane, Qld 4011
07 52 3862
This release of *CCP/M* allows IBM-PC and PC-XT users to run 4 tasks simultaneously in selected areas of the screen. The windows may be expanded, contracted, moved, have foreground and background colors selected, be written to disc, all under instant control. The DRI GSX graphics package is included, as are menu-driven, function-key-operated utilities. This release speeds disc access. Memory drives are supported by the operating system. Requirements: IBM-PC with 2 dual disk drives and 2x256K or PCXT with 2x256K. Skill level: Novice. Price: $290.

**DPATCH DISK ERROR RECOVERY SYSTEM**
Digital Equipment
Railway St
Chatswood, NSW 2087
02 412 5252
*DPatch* is a disk utility program that will help to ensure the security and recoverability of disk resistant data and files. The menus used by DPatch to interact with the user are self-explanatory and its interactive screen prompts ask the user, in simple English, to enter the relevant data as it is needed. Requirements: Decmate II with optional CP/M card. Any valid Rainbow system configuration, CP/M. Skill level: Novice, however, full use requires higher skill. Price: $340.



## What is DOS: A Beginner's Guide

When you read to "Requirements" at the bottom of each listing, you'll see a figure like 128K. This means that this is the amount of memory you need to run the software.

Where you read MS-DOS, PC-DOS, CP-M, these are names for different operating systems – or the instructions that let you run software. Without it, your machine is just a box.

These codes also give you some clues as to what hardware this software will run on. If it says PC-DOS, then it will run on the IBM-PC, and some IBM compatibles and lookalikes.

If it says MS-DOS, then it will run machines other than the IBM-PC, those that have MS-DOS. Some MS-DOS versions will let you run PC-DOS software on non-IBM machines.

When you see CP-M, this means it is another earlier operating system variation of the standard MS-DOS. Sometimes you'll read CPM 80 or CPM 86. 80 means the old-fashioned 8-bit chip, and 86 means the faster 16-bit chip. Most PCs today are 16-bit or faster.

MS-DOS is a trademark of Microsoft, which means Microsoft Disk Operating System. PC-DOS means Personal Computer Disk Operating System. PC-DOS is a modified version of MS-DOS. CP-M stands for Control Programme Microcomputers.

When you see other DOS (Disc Operating System) acronyms, this usually means that this software is formatted for one particular machine, and that this machine may not have a large software base.

Apple II and III are an exception. They have their own operating system; Apple DOS, for the Apple II, and SOS for the Apple III, and now ProDOS, which lets Apple III run the 16,000-package software base of the Apple II.

If you want to find out if the software will run on your machine, or what machine you should get to run the sort of software you need in your work, there is a simple answer.

Call the distributor listed here, or your local computer dealer. Most dealers and distributors stock different versions and can also sometimes format software for you. They will also be able to tell you what sort of mass storage, floppy disks, disk drives and hard disk you may need.

Bigger dealers and distributors test-run new software on a variety of machines to test compatibilities.

Watch out also for operating system updates and versions; PC-DOS, for example, now has version 1.0, 1.1, and 2.0. Software may or may not run with the various versions.

You'll have to keep your wits about you, because software also has version updates, just like operating systems. Lotus 1-2-3 has a 1.1 and a 2.0 version. Add all this up, and you'll understand what a good computer dealer can clarify for you.

8-bit, 16-bit, and 32-bit are something else you will hear. Fast, faster, fastest, is one way to think about it. The numbers mean the number of bits in the package of data running through your computer.

It is also another way of talking about the chips, or the memory and processing power of your system.

**Those bits**

An 8080 chip means 8-bit. So does Z80 and 8085. 8086 is 16-bit. So when you see "CP-M 86," this means that this is software for a 16-bit computer with a CP-M operating system. If you see CP-M80 that's old-fashioned 8-bit with a CP-M operating system.

Until 1984, 32-bit was reserved for high-powered minicomputers. But this year, both Apple and Hewlett Packard have broken the barrier and brought 32-bit power and its associated graphics abilities to the PC. Again, both have their own different operating systems, and software must be specially formatted. Both also use a new, small, shirt-pocket-sized disc.

# The Wonders Of MacPaint

MacPaint is the product which brings a small graphic arts studio to the computer screen. It uses versatile artist tools such as pencils, paintbrushes, paint, templates, erasers, T-squares, tracing paper, scissors and paste. The initial screen display shows all these tools, neatly arranged in the form of Icons around the blank page. The mouse is used to choose the available facilities, and there are some simplified keyboard commands which can be used in place of the movement and clicking of the mouse.

The use of MacPaint is currently limited to black and white drawings, plus text. But when the promises of integration with other business applications such as Multiplan and dBase II become fact, users may be hard-pressed to get the same results out of any other machine for the same price.

One of MacPaint's outstanding qualities is ease of use. A training cassette is available which runs concurrently with an on-screen demonstration program. In 20 minutes, this training course provides all the information necessary to commence drawing on the screen. Help files are also available to explain all the Icons. There is also a program to practise using the mouse, plus a game called Amazing which offers simple to impossibly difficult mazes.

The 20 basic Icons appear on the lefthand margin for drawing with a pencil, brush, spray can, filled or unfilled shapes or various lines, including perpendicular lines. There are five choices of pencil lines with varying thicknesses, 32 types of brush strokes, 38 shading patterns which can be user defined, and even an eraser option. This can be used to rub out portions of the drawing or to clear the entire paper and start again.

Nine basic typefaces were available on the review software. The font can be altered according to need. Point sizes range from 9 to 72, with a text style option for six types of emphasis, such as outline, bold and italic. Text can be aligned left, right or centred.

*Claudia Ivanoff with Macintosh test vehicle.*

A lasso Icon allows portions of the drawing to be moved. Another Icon, the Select, can be used to duplicate items which have been drawn. Using one of the Goodies options, the entire page can be viewed, or a screen area can be blown up, for drawing on a more detailed level. That is, individual dots on the screen can be displayed. Both viewpoints can be simultaneously displayed.

Shapes or selected areas can be instantly filled by the paint can Icon, with a chosen pattern, black or white, creating some interesting illusionary effects. Brush shapes can be mirrored, and short cuts can be chosen to reduce the requirements for moving and clicking the mouse.

Editing options include: undo, cut, copy, paste, clear, invert, trace edges, flip horizontal or vertical, and rotate. This type of editing would normally take a graphic artist many hours to do manually. A little hand-shaped Icon is used to scroll through the drawing or provide additional blank working space.

Screen resolution of drawings is of medium quality, and certainly sufficient for many graphic art presentations. Drawings can be figurative, cubist, pop or represent a number of styles, limited only to the imagination of the artist.

MacPaint is a dynamic black and white graphics product which can be used to enhance notices, memos, invitations and other types of information which need to capture attention. Screen layout is clear, the mouse is easy to use, operation is fast and results are immediately visible. They are also printable on the Image Printer made for the Macintosh.

Good drawings can be created in one-tenth of the time a traditional graphic artist might need. The artist, or aspiring artist, can spend more creative time because the machine does all the boring repetitive work. Furthermore, there is no ink to clean up, or other associated "artistic mess". MacPaint is a refreshing computer product.

*Claudia Q. Ivanoff is an office automation consultant with Coopers & Lybrand Services, Sydney.*

# Letters

**A real need**

Sir: As a professional chartered accountant, who has had to come to grips with the computer age through "the school of hard knocks", I applaud the concept of your new magazine. I have been involved and responsible for the computer discipline in my firm over the last 18 years.

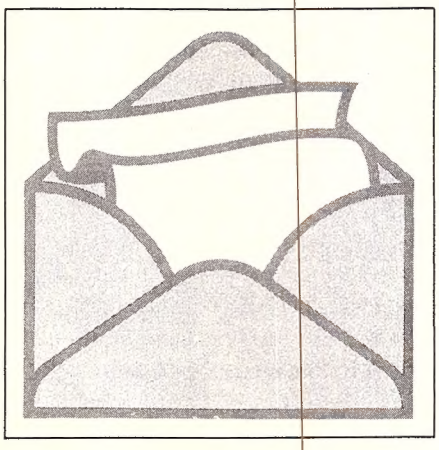
My firm was one of a consortium which formed the first computer bureau for accountants and their clients in Sydney. From then we have progressed through various stages and forms of computerisation to where we now have a fully integrated in-house accounting and word processing system together with a portable microcomputer to service our client needs. With this facility we can service all our clients' accounting and secretarial requirements which include; annual statutory accounts; monthly accounts compared to budgets; income tax returns; budgets; cash flow projections; debtors/stock control; and word processing etc – all "automatically" on our computers.

We have achieved the above, with no formal computer education (they were a thing of the future when I did my training), and we made our mistakes and had our share of "burnt fingers". I can therefore say with some authority that there is a real need for a publication such as yours to assist the Australian businessman/executive to bridge the education gap that I and my firm had to do the hard way.

Having said all this, however, my immediate concern is the way I believe our schools are misdirecting funds and education time on computers. It appals me, as a father of three young children (under 10), that they are going to start being introduced to computers in primary school.

I have no argument with computers being used as an educational tool, in certain circumstances (for teaching maths, spelling, languages, etc), but I don't believe the equipment or programs which are available to our schools at this stage are sufficiently advanced to replace traditional teaching methods. Our primary schools could therefore make better use of available funds on, for example, video equipment and musical instruments.

My opinion is that our schools are being misled by the computer age gimmick syndrome, and the teachers involved obviously believe they are helping our children to come to grips with computer age technology. However,



from my experience of the vast change that has been and is still occurring in computer technology, it is plain that what our children are learning now about computers will be totally redundant by the time they leave school.

To me, it is equivalent to the unnecessary time and effort we spent at school learning how to use a slide rule. However, the big difference is it was not known then how the pocket calculator would replace this device. Anyone associated with computers today knows that the computers available now (especially the micros used in schools) will be regarded as toys in about five years from now.

In summary, therefore, I believe:

(i) Computers at present have no, or very limited, educational value at primary school level.

(ii) If computers are used as an educational tool, they should only be used in special circumstances (eg, remedial teaching exercises) and not to replace the very important inter-personal relationship of teacher and student.

(iii) All students should be introduced to computer concepts at secondary level with equipment ("hardware") and programming ("software") which is abreast with the latest level of technology ("state of the art").

This, therefore, will require a constant liaison between the educationalists and computer manufacturers; funds to be available to replace equipment as it becomes obsolete (for educational purposes); and highly skilled teachers who can keep abreast with the constant changes.

Colin R. Barr, FCA
partner,
Davidson and Mein
chartered accountants
Sydney

**Rationalisation pending**

Sir: If a micro/personal computer is manufactured anywhere in the world today, it is sold in Australia. Can all of these suppliers survive?

Can another computer magazine survive? We hope you do well, but along the way how will you protect your readers from the obvious pending rationalisation of manufacturers and suppliers to the Australian market?

H. Marshall
Newport Beach

**Ready to plunge**

Sir: We are a major importer and wholesaler of haircare products to the Australian market. Later this year, after some three years of operation, we will acquire our first personal computer – don't know which one yet!

Our operation involves a large number of items, inventory planning at our

Sydney warehouse, distribution of orders throughout Australia and marketing in all States.

We are selling to hairdressing salons, not direct to the public.

I am totally confused about where the personal computer industry is going, especially in terms of survivability of current software and, even more pertinent, hardware.

Should we invest in DOS operating systems, for example, at a time when IBM is purported to be on the brink of a 32-bit rather than 16-bit PC, and with the ATT-derived Unix software?

What are the risks of investing in workalikes, such as Eagle or Sirius, while others appear to be in big trouble? What are the risks of investing in non-IBM-compatible machines, such as Apple and Digital?

And IBM – how tenuous are its links with its dealers? I know from one personal experience, they are getting increasingly nervous about their burgeoning dependence on Big Blue (as you Press people call IBM). What support does a user really get with an IBM-PC – it appears to be as good as the backup of the dealer he bought it from, nothing to do with IBM.

As I can see, only one company in the small systems game supports its equipment directly, throughout Australia and even in New Guinea – Remington. But Remington interestingly is not really into PCs. Why?

If your new magazine, Today's Computers, can get properly into the above issues, and others of tangible benefit to users and potential users, it is then creating something new and useful.

Meantime, you should wish us luck when we take the plunge.

Will Matthias,
director,
Italia Hair Care Products
Rockdale, NSW

**Confusion**

Sir: The personal computer market to me appears an enormous plethora of confusion. Perhaps the biggest hassle is understanding which systems are seriously designed for the office and which should be sold into homes.

I gather the market is even more confused in the US where, because of higher incomes and greater buying power, $3,000 to $10,000 systems are not uncommon in homes.

Well that isn't the case yet in Australia and I guess about $2,000 is the limit for a home system.

Where should the line be drawn?

Today's computers could do me a big favour (as a businesswoman interested in personal computers at work), if it could develop some clear definitions. Then, I would like to see your magazine further divide up categories of software and hardware.

Elizabeth Wilson
Newport, NSW

*EDITOR: We agree about the confusion and aim to work very quickly towards some straight answers*

**Consultants**

Sir: There are consultants, and there are consultants. But what are the differences and what are their various differing vested interests?

As a potentially large business user of personal computers, I would like to see Today's Computers investigate thoroughly the Who's Who of consulting in this area. I am aware organisations such as accountants, auditors and software houses have plunged heavily into advising in the PC region.

But some of them are virtually original equipment manufacturers (OEMs) for hardware vendors. Others sell software packages on behalf of third parties. And I believe some are lobbying to pick up lucrative dealerships for major vendors.

Some consultants may be experts in communications but little help in word processing.

If parliamentarians are going to declare how many shares they hold through the friendly family trust in BHP, then let's have consultants bare their souls.

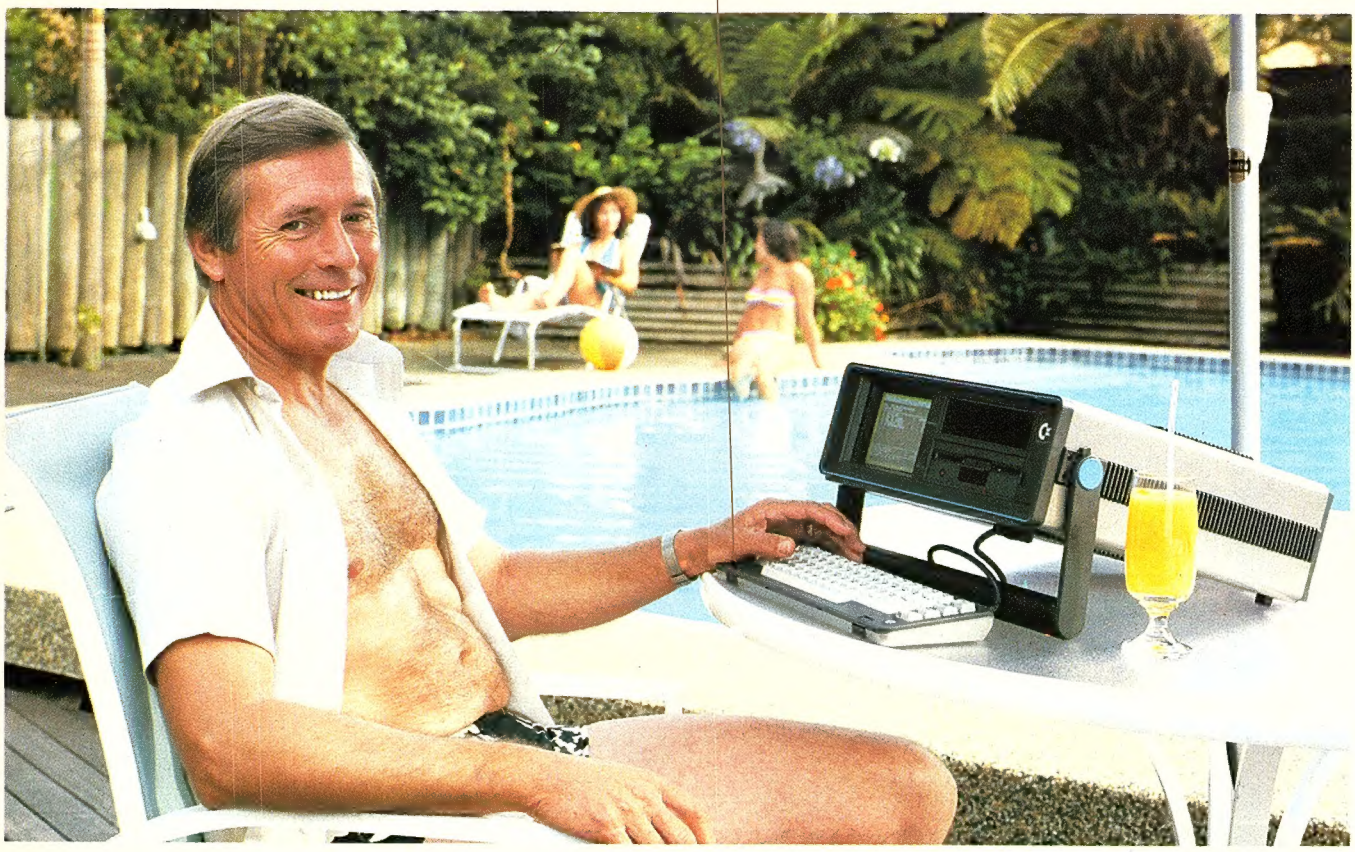
Karen Harper
North Rocks, NSW

*EDITOR: Of the several dozen reports earmarked prior to this first issue of Today's Computers, a consultants' listing of strengths and vested interests was already planned for our next issue, in June. Read us next month, Ms Harper, but we don't guarantee to get at consultants' family trusts!*

# COMING UP IN OUR JUNE ISSUE

Tillie Eaken (above), together with Sydney College of the Arts, has designed an Apple II-based circulation and library management system. Her story is in our June issue.

Bill Gates, 28, of Microsoft (above), youthful grandfather of the PC operating system MS/DOS (now also used on the IBM-PC as PC/DOS), talks to Today's Computers in our June issue.



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